

HINTS ON CAGE-BIRDS

(BRITISH AND FOREIGN.)

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BY

Dr. A. G. BUTLER, Ph.D., F.L.S., F.Z.S., etc.

ILLUSTRATED.

"THE FEATHERED WORLD,"

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Hints on cage-birds (British and foreign)



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SOME OF MR. H. T. J. CAMPS'S COCKATOOS. (Illustrating arrangement of birds at shows).

HINTS ON CAGE-BIRDS

(BRITISH AND FOREIGN),

BY

ARTHUR G. BUTLER.

Ph.D., F.L.S., F.Z.S., ETC.

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PREFACE.

AVICULTURISTS in the present Century ought to do better work than their predecessors, inasmuch as they will have the benefit of the experience of many who have preceded them in the study of cage-birds.

Twenty-one years before the production of the present little work, I was commencing to keep living birds. At that time there were few English books which could give any assistance to the beginner; certainly none that could be regarded as general hand-books; it was, therefore, only possible to acquire knowledge slowly and painfully, by many experiments, frequent losses, and consequently serious expense. Now that men who have laboured and suffered are recording the results of their work, as it is their bounded duty to do, their successors may confidently look for brighter and more prosperous times; starting where the pioneers left off, they may continue to add to the sum of knowledge, and may hope eventually to bring the science of bird-keeping to something approaching perfection.

The present hand-book summarises the results of twenty-one years' study, and may, therefore, perchance be of use, as one of the stepping-stones to greater things at which I have hinted.

A. G. BUTLER.

March, 1903.



CONTENTS.

	PAGE		PAGE
ARRANGEMENT OF EGGS OR		MEANING OF TERMS - -	50
NESTS - - -	78, 79, 80	MEAT DANGEROUS - - -	28
BEST FOOD FOR REARING BIRDS	27	MIGRATION OF ONE SEX - -	31
BIRDS DYING VOLUNTARILY -	48	NEED OF PATIENCE IN TAMING	57
BIRDS' NESTING - - -	75-78	,, WARMTH FOR YOUNG	
BLOWING EGGS - - -	78	BIRDS - - - -	30
BREEDING, ARRANGEMENTS FOR	35-42	PACKET-SEEDS DANGEROUS -	25
,, HYBRIDS - - -	59-64	PASSIONS OF BIRDS - - -	47
BOX-CAGES - - - -	12	PHYSIC TO BE GIVEN IN MODER-	
BOXES FOR SEED - - -	23	ATION - - - -	48
CAGES AND AVIARIES - -	11	REAL CAUSES OF RARITY IN	
CAGES, ECONOMICAL FORM FOR	16	BIRDS - - - -	20
CATCHING BIRDS - - -	69-75	SAND FOR CAGE OR AVIARY -	13
CHARACTER OF PERCHES - -	13, 14	SEXUAL DIFFERENCES - - -	30-34
DRAW-TRAYS FOR CAGES -	16	SHOWING BIRDS - - - -	50-52
DRINKING-VESSELS - - -	14	STUDYING HABITS - - -	44-46, 52
EASIEST BIRDS TO REAR - -	27	SUITABLE SIZES FOR CAGES -	12
EDUCATION OF EYE NECESSARY	76	TAMING BIRDS - - - -	53-57
EVILS OF BIRD-LIME - - -	70	TEACHING BIRDS TO TALK, &c.	64-69
,, OVER-ANXIETY - -	48	UNSUITABLE CAGES - - -	11, 12
,, OVER-CROWDING - -	13	USES OF BIRD-SHOWS - - -	51
EXAMINATION OF NESTS - -	45	VALUE OF GUIDE BOOKS - -	11
EXPERIMENTS WITH SEEDS -	24	VARIOUS TRAPS - - - -	73-75
HAND-REARING BIRDS - - -	27-30	,, NETS - - - -	72
HOW BIRDS BUILD - - -	52, 53	WARMTH IMPORTANT FOR SICK-	
HOW TO FEED BIRDS - - -	22-26	NESS - - - -	49
ILLNESS AND WOUNDS - - -	47-50	WHAT BIRDS TO KEEP	
IMPORTANT TO TAXIDERMISTS	46	TOGETHER - - - -	17, 18
IMPOSSIBLE MULES - - -	63	WHERE TO GET BIRDS - - -	18-22
INSTINCT IN BIRDS - - -	44	WHOLESALE MULE-BREEDING	63
INTELLIGENCE OF WAGTAILS -	29	WILD BIRDS' PROTECTION ACT	18
JUMPING TO FALSE CONCLUSIONS	44, 45		

LIST OF ILLUSTRATIONS.

	PAGE		PAGE
AVIARY, LADY MORSHED'S		JAVA SPARROWS - - -	24
GARDEN - - -	14	LOG NEST FOR PARRAKEETS -	40
AVIARY, MR. RAMSAY'S -	62	MANNAKINS AND ZEBRA-FINCHES	21
,, MR. CROSBY'S PIGEON	15	MYNAH, HEAD OF - - -	66
,, DR. CRESWELL'S -	16	NESTING BOX FOR PARRAKEETS	39
,, DR. BUTLER'S -	19	NEST MADE FROM CIGAR-BOXES	41
,, MR. MATHER'S -	63	NEST, MAHOGANY - - -	41
BLACKBIRD, BILLS OF - -	31	PARROT, HEAD OF GREY -	34, 67
BLUE-BIRD, HEAD OF - -	31	PEKIN NIGHTINGALE, HEAD OF	32
BOX-CAGE (3) - - -	12	PHEASANT, ARGUS, SHOWING	
BOX-TRAP - - -	73	OFF TO HEN - - -	43
CARAVAN TRAP - - -	74	PHEASANT, GOLDEN, SHOWING	
CAGE FOR THRUSH - - -	37	OFF TO HEN - - -	10
,, BLACKBIRD - - -	37	ROBIN'S NEST, CURIOUS SITE FOR	76
CLAP NET - - -	71	ROBIN, HEADS OF - - -	32
COCKATOOS, ROW OF - <i>Frontispiece</i>		SKYLARK, WINGS OF - - -	33
COCOA-NUT HUSK - - -	38	,, AND COLLIE, MR.	
DR. BUTLER FEEDING HIS BIRDS	25	HOWARD'S - - -	58
DR. BUTLER AND HIS PARROT	60	SPOTTED WOODPECKER AND	
HARTZ CAGE AS NESTING RE-		MISS BARNES - - -	56
CEPTACLE - - -	36	THRUSH, MASTER VINE AND	
HERON, MRS. OGLE AND HER	55	TAME - - -	54
HYBRIDS, BICHENO-ZEBRA-		TOM-TIT'S NEST, CURIOUS SITE	
FINCH AND CHESNUT-		FOR - - -	76
BREAST-SILVER-BILL -	65		

INTRODUCTION.

THE object of the present work is to indicate, in a condensed form, the most satisfactory methods of acquiring, housing, feeding, and studying bird-life in a state of captivity. Each branch of this vast subject is briefly dealt with in a separate chapter, so that it can be easily referred to, and the student may have no excuse for not making himself master of so much as I am able to tell him.

The fourteen chapters discuss cages and aviaries, the selection of suitable birds as companions in captivity, feeding, hand-rearing, sexing, preparation for breeding, scientific study of bird-life, illnesses and wounds, showing and nest-building, taming, mule-breeding, teaching birds to talk or whistle, catching, and birds'-nesting.

On all these subjects we still have very much to learn; but unless we begin by consulting the work already done, there will be no likelihood of an advance; if also we keep all that we learn to ourselves, our lives are of little use to others, and our labour is in vain. All new facts are worth recording; do not prevent others from benefiting by them.



GOLDEN PHEASANT SHOWING OFF TO HEN.

HINTS ON CAGE-BIRDS.

CHAPTER I.

ON CAGES AND AVIARIES.

WHEN a man first makes up his mind to become a keeper of birds he frequently falls into the serious error of supposing that no previous preparation is necessary to fit him for the work in which he proposes to engage. In some cases he takes the trouble to ask the dealer from whom he purchases his birds how they ought to be fed; and, as the dealer often knows no more about the matter than he does himself, it is not surprising that only a week or so suffices to decimate the newly-purchased stock.

I do not for a moment suggest that there are not practical dealers who are able and willing to give excellent advice to beginners; I owe much of the knowledge of cage-birds which I have acquired to the kindness of a really scientific dealer; but many men who keep bird shops know next to nothing about birds, they lose quite half the birds which they buy, and make their living out of the remainder. I have seen one of these men opening his shop window in the morning and going from cage to cage, throwing the dead Linnets, Goldfinches, and other things into a pail without the least concern, it being evidently an everyday matter with him to find from eight to a dozen corpses among his stock. In the present day, when plenty of good books on bird-keeping can be obtained at small expense, there is no excuse for a man beginning the study of cage-birds without preparation. Undoubtedly guide-books are not infallible, but they place the budding aviculturist in a far safer position than the man who knows nothing.

Before you begin to keep birds you should decide in what way you wish to keep them, whether in cage or aviary; and you should settle in your own mind what kind of cage or aviary would be most suitable to the health and comfort of your birds. You may take it as a general rule that an ornamental cage or aviary is a most unsuitable one; thus nothing could well be more abominable than the glittering brass-wired cages which one frequently sees exposed for sale in the windows of ironmongers' shops; they are not only too

small for the happiness of a single bird, but the brass soon corrodes, producing verdigris, which the bird pecks and thus poisons itself.

The Crystal Palace cage, being often miscalled an aviary, induces the purchaser to keep many birds in an area only large enough for the health of three or four; being of an ornamental character, it is often stood upon a table in front of a window, and when the window is opened the birds are subjected to a direct and continuous draught from which there is no escape. If an attempt is made to protect them by covering the back and the sides of the cage with baize, immediately a magnificent harbour is provided for red mite. Apart from these considerations, the feeding holes in Crystal Palace cages are often so large that almost any bird smaller than a Canary—certainly any Waxbills or the smaller Mannikins—can slip through them and get drowned in the drinking trough.



1.

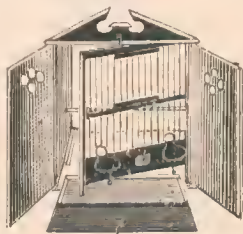
MR. SOMERFIELD'S BOX-CAGE FOR A SINGLE BIRD.

After many years' experience, I have been convinced that for all cages or indoor aviaries the only healthful form is that to which the name of "box" has been given—that is to say, the back, top, bottom, and ends are solid, the front only of open wirework.

Now, as regards the size of cage to suit various birds, it must always be borne in mind that floor space is of the highest importance, because all excreta, refuse-food, and splashings from a bath falling upon the floor of a cage or aviary produce noxious exhalations, tending to imperil the health of the inmates; so that if a cage be 1 ft. in cubic measure, or be 1 ft. square and 2 ft. high, it is practically only large enough to contain one bird the size of a Norwich Canary. On the other hand, if the cage be 2 ft. long, 1 ft. high, and 1 ft. deep, it is large enough for two birds of that size.



2.



3.

THE SAME CAGE SHUT UP, AND TAKEN APART FOR CLEANING.

Overcrowding is a frequent cause of disease and death; and even when an aviary is not too crowded for health, all chance of breeding is precluded by the frequent disputes or officiousness of the too numerous inhabitants; this, indeed, has been the chief reason why I have bred fewer birds than some aviculturists who are less happily provided in the matter of aviaries. A general study of cage birds necessitates an accumulation of material which renders breeding difficult.

One of our most successful breeders of foreign birds not only owned (and probably still owns) many very large aviaries, but limited each of these to two pairs of birds—one pair of ground birds and one of flying birds; for him to have failed would have been practically impossible. I believe I have correctly recorded the facts as he gave them to me. We cannot, most of us, afford such liberality, but I hope one of these days so to reduce my stock that my breeding experiences will become more satisfactory.

There are some birds which breed as well (or perhaps even better) in crowds, as they do when kept separate; as, for instance, Zebra Finches, Java Sparrows, and Budgerigars; only, in the case of Java Sparrows the crowds must not consist of the same species, whereas in the other two cases cited they must.

But I am wandering from cage and aviary to matters with which I intend to deal more fully later; therefore, having considered the general type of cage and aviary which are most healthful—the box type—and the need for not overcrowding the same, I must draw attention to the importance of good sharp sand to assist digestion. For this purpose there is nothing equal to the sea sand frequently used by builders as sharp sand for concrete work.

If you go to a builder and ask him if he uses sea sand he will probably deny it; he always thoroughly washes it to get rid of the salt before using it. If you purchase “sharp sand” from a builder you will get it with the salt in it (which is just what you require), and all you need do is to sift out the coarser shingle for your larger birds, or fowls if you keep them.

The late Mr. Abrahams many years since said to me, “Never use anything for your birds but sea sand *with the salt in it*. On no account use shell sand, which is a constant source of danger to the life of birds, owing to the broken shells which it contains; the fragments cut through the crop like bits of glass, letting out the contents among the muscles of the neck or out of the front. Red sand often contains clay and little solid grit; sea sand is the easiest to obtain, the cheapest, and the most wholesome.” I have strictly followed this advice and proved its truth.

Another matter of moment is the character of the perches. In cages these should never be too small for the bird to get a good grasp of. Too small a perch cramps the foot and strains the sinews; if the claws are sharp it may even be the means of scratching the toes with which they are thus brought into forcible contact; then dirt gets into the wound, the toe decays and drops off, and the bird is

ruined. Perches are usually made too small, particularly for large birds; thus I do not believe that a Blackbird is comfortable unless his perch has a diameter of about half an inch. I generally use one nearly 1 in. wide by $\frac{1}{2}$ in. deep.

For birds with delicate feet, like the Nightingales, an excellent plan (recommended to me by my late chief, who has kept birds more or less since he was a lad in Germany) is to draw over them a piece of indiarubber tubing; the rubber is soft and yielding to the toes which grasp it, and is easily wiped clean with a wet rag.

In aviaries I know of nothing better than natural branches let into the uprights which support the roof, and firmly screwed in place;



LADY MORSHEAD'S GARDEN AVIARY.

of course, these may be supplemented by dead or living shrubs or dwarf trees.

As regards receptacles for water, the most simple and cleanly for hanging outside cages are formed like the back of a child's perambulator with the hood up; but if your cages are large enough I see no objection to letting the bird have his bath and drinking trough in one, in which case the earthenware pots for pigeon food with the rim turned in answer remarkably well. Blackbirds sometimes foul their water systematically; but their filthy habits do not appear to injure their health.

In aviaries undoubtedly the running fountain is the ideal thing, for the water is then always changing and never foul. I have these in two of my aviaries, but in the others I use either large flower-pot saucers about 8 in. to 10 in. across, or zinc trays 2 in. in depth and about 2 ft. by 1 ft. in other dimensions; these are all scrubbed out daily. The covered arrangement generally called a "fountain" is objectionable, because it tempts the owner to neglect it from the mere fact that the water does not look dirty after a day's use; and, in the second place, it deprives the birds of one of their most healthful enjoyments—a bath.



SOME OF MR. CROSBY'S PIGEON AVIARIES.
These only need different internal furnishing to make admirable aviaries for Cage-birds; but the wire-netting should be half-inch.



ONE OF DR. CRESWELL'S AVIARIES.

As regards draw-trays for cages. I prefer zinc to anything else; wooden trays get wet, swell up, and become jammed; tin gets rusty, but zinc is easily cleaned and is some years before it gets corroded through.

Lastly, touching the character of cage or aviary, the most economical of space for the former is the square or oblong form, but the aviary should have a span or sloping roof. The most satisfactory form of aviary is that with a warmed indoor section for winter work, and an unheated outdoor section for summer work. As to the method of heating, the best plan is undoubtedly by hot-water pipes and a coke stove; oil stoves are never wholly satisfactory; but hot air, if accessible, should answer well.



CHAPTER II.

WHAT BIRDS TO KEEP TOGETHER IN CAGE OR AVIARY, AND WHERE
TO GET YOUR STOCK.

HAVING decided upon the form and arrangements for his cages and aviaries, the next point to be considered by the beginner in aviculture is the stock which he proposes to keep. This, being of the greatest importance, should not be decided upon without due consideration, for many reasons.

If the beginner is a poor man, he must bear in mind that soft-feeders, although by far the most interesting birds to keep, are considerably more expensive to feed, and take up a great deal of one's leisure time in the mere preparation of their food. Not only does all soft food take some time to prepare, but that which is suitable for one group of birds will not do equally well for all: although it is true that seed-eaters will not all flourish or even retain their health if fed upon the same seed mixture, it is easy to mix the seeds for the various types of granivorous birds in bulk, and keep it in tins ready for use.

In the second place, there are many birds which cannot safely be kept together in one cage or aviary; there are others which will invariably fight to the death in a cage; but in a tolerably large aviary will not molest each other. Some birds are by nature bullies, and whilst always ready to attack anyone smaller than themselves, are too cowardly to hit a fellow of their own size. Among these I found Ortolan Buntings and some of the Weavers to be notable instances. It may also be taken as a general rule that all kinds of Parrots, however small, are dangerous associates for any birds with less powerful beaks, even though considerably larger than themselves.

Some birds are practically harmless if only one example is kept, but when paired prove most dangerous. Among these the Crossbill may be cited. It will, perhaps, be remembered that some time since I cautioned one of my correspondents against keeping a pair of Crossbills with other seed-eaters, and a gentleman wrote to say that he knew of a Crossbill which lived in perfect harmony with other birds. I subsequently asked a friend who had kept European birds for about fifty years what he thought about it, and he replied that a pair of Crossbills, in an aviary with other birds, would be certain to maim and slaughter many in the course of a year; he had himself tried this, with the most disastrous results. Thus my own experience was verified.

Individual birds are sometimes dangerous, although belonging to species which are usually trustworthy; there are malevolent

individuals amongst birds as amongst human beings; against such one can only guard by watching their behaviour when first introduced into company, and promptly catching them if they misbehave.

As a general rule it is unsafe to put insectivorous and seed-eating birds into the same aviary; but there are notable exceptions to this rule; I find that the smaller Chats and the Warblers can be safely associated with the tiniest Finches. At the present time I have a pair of Redstarts in the same aviary with a crowd of Grass Finches and Waxbills.* It has been suggested that insectivorous and granivorous birds should be kept apart, lest they make themselves ill by eating each other's food. I think myself that one might as well object to keep cats in a stable, lest they should eat hay and beans. Many insectivorous birds are partly granivorous, and most seed-eating birds are all the better (provided they get plenty of exercise) for a certain amount of soft food.

Wagtails and Thrushes of all kinds, whether British or foreign, should not be associated with the tiny Finches, or even with other birds much smaller than themselves; I have seen a Grey Wagtail hold down and hammer a Blue Tit until it screamed with pain, and I had to rush in to the rescue; the Pied Wagtail is also very aggressive; as for our Robin and the Blue Robin, their behaviour towards small companions is well known, though I have had Robins on several occasions which were patterns of amiability.

Hand-reared birds, when turned into an aviary with wild-caught ones, occasionally develop avicidal tendencies: I once brought up a nest of Chaffinches, and sold one of the cock birds to a friend, who turned it into an aviary with Canaries, a pair of Goldfinches, and a pair of Bullfinches. A few days later my friend came to me with a long face, and informed me that my Chaffinch had scalped a cock and hen Canary; it had been making up to the hen, and flew into a passion because she showed a decided preference for her lawful husband; having run amok, he did not stop with the Canaries, but killed a Goldfinch and Bullfinch. My friend said he felt inclined to wring the bird's neck, but finally caged it up and gave it to his sister.

It is impossible to be too cautious; therefore, unless you are quite sure, watch all birds for a day or two after you put them together.

Now the next point is—where to get your birds in good health, and in the cheapest market. As regards British birds, this has become a more difficult point to decide since the introduction of the Wild Birds' Protection Act. In the old days I should have recommended my readers to catch what they could, and go to some trustworthy bird-catcher for the balance; but now, where and when may you catch? Where can you find a bird-catcher? I have

* Since this was written, the cock Redstart, being anxious to breed before the hen was ready, pursued and murdered her; afterwards he moped and cried for her for about a fortnight, and died about a month later.



DR. BUTLER'S COVERED AVIARY LEADING INTO CONSERVATORY.

Two other aviaries are at the back of the small greenhouse on the left ; beyond these is the bird-room, looking into the conservatory on the right. To the right of the latter are the out-door aviaries.

not seen one for years, or I would have had a fine show of Goldfinches.* Even if you buy Britishers at a bird shop, you cannot be certain that you will not be dragged into court and fined for having recently-caught birds in your possession; but I am afraid you will have to risk that. And remember that, with the exception of the few birds which frequent our gardens and parks, the extinction of the avifauna of this country must soon result, from the incessant destruction of woods, commons, the reclaiming of marsh lands, and the substitution of bricks and wire fences for the beautiful products of Nature. The real cause of the reduction of bird life in Great Britain is the destruction of cover and nesting sites, with the food necessary to its sustenance. In the old days, when every man and child throughout the year waged perpetual war upon the feathered tribes, our country swarmed with bird life, for the features of these islands then encouraged the migrating myriads to settle here. Now they pass over us as over a barren and inhospitable land.

Perhaps, on the whole, the best way now to secure British birds is to answer one of the advertisements in *The Feathered World*, adopt the deposit system, and await the result. I fear I cannot suggest anything better.

As regards foreign birds, there is still some hope, though the rules of steamship companies and the partial introduction of close-times into our colonies have rendered the importation of birds a little more difficult than aforesaid. There is still a goodly array of foreign material to be had at moderate cost by those who will take the trouble to ransack the bird shops of our towns; and, with a little previous study, it is sometimes possible to secure even rare and interesting birds without much expenditure of capital; only you must be awake, and know what you are buying, or you may chance to get left. To give three shillings for an "Auckland Nightingale" under the impression that you have secured a rare songster from New Zealand, and then to discover that your bird is a common Ortolan, with no song worthy of the name, is disheartening.

If possible, know your birds, and have some idea of their market value, before purchasing. It is true that the value of imported birds decreases greatly when the market is overstocked, just as it increases when the reverse is the case. Well, I suppose I need hardly suggest that a dozen Avadavats at five shillings (even if half of them should die) would be better worth having than one pair at the same price; still, if the market is not glutted it is better to pay the higher price than to go without your birds. On the other hand, when it comes to a question of ten shillings or ten pounds (as I believe has occasionally been the case in the matter of purchasing a Parrot), I should recommend you to hesitate over the higher price before giving it, though I should simply button up my coat and decline the purchase.

* Soon after the publication of this observation in *The Feathered World* a bird-catcher brought me three young birds, two of which I still have.



GROUP OF MANIKINS AND ZEBRA FINCHES.

Whatever you do, never buy thin, badly plucked, or throbbing birds; they are almost certain to die promptly if you do; the loss of a tail, or a very little pecking at the back of the head, provided that the bird be plump and active, with bright eye and no feverish heat about the vitals, are of little moment; a few feathers are soon replaced by a healthy bird. Whether, however, your purchase be pecked or perfect when it first comes into your possession, and even though it may seem to be in excellent health, it will be wise for you to keep it in quarantine for a few days, to make quite sure of it before placing it with others.

Many years ago I was taught a severe lesson bearing upon the above point. I had been breeding Canaries, and had been exceptionally lucky in the number of cock-birds in my batch of youngsters. Thinking to provide two of my birds with hens at a cheap rate, I went to a shop and bought a so-called "pair" of bright-looking German hens for half-a-crown. These birds looked so healthy that I turned them straight in with the others, and within a fortnight I had lost every Finch in my collection excepting a sturdy old Chaffinch, which survived for many years. Take care that the same trouble does not befall you.

CHAPTER III.

HOW TO FEED BIRDS.

IN my last chapter I made observations and gave hints respecting the stocking of cage and aviary; not that I consider it wise to purchase stock immediately after the housing of the birds has been provided for, but because it is necessary to decide what you intend to keep, and how you propose to obtain them, before you can adequately prepare for their wellbeing.

Before actually making your purchases, the first thing to study is how to feed them correctly; more deaths are due to the neglect of this most important consideration than to anything else. As I have undertaken to give hints on cage-birds, with the object of making the work of the beginner easier and less heart-breaking than it was when I first took up the study, it will not, perhaps, be necessary for me to advise him in every instance to look up the wild life of his proposed pets; although, as regards the foreigners, he could discover almost all he is likely to require in "Foreign Bird Keeping," and in the case of the Britishers, the much more expensive work, "British Birds with their Nests and Eggs," would afford similar information; I will, therefore, first of all, give some general hints respecting the foods most necessary to the bird-keeper, and then pass on to details.

For seed-eating birds the most important foods are canary and white millet; if you keep a large assortment of birds, both British

and foreign, it will be wisest for you to do as I do, get some galvanised iron boxes ready (sanitary dust-bins, in fact, made square) and get these important seeds in, two bushels at a time; seed keeps perfectly in these covered boxes, and no mice can get at it.

The seeds of next importance are hemp and German rape, which I get by the bushel, and keep each in a box of its own; then, if you have Doves and Parrots, dari will be required in quantity; that is to say, a peck at a time, which can be kept in a large square bisenit tin, upon a shelf, or on the top of one of your flight cages. Of other seeds which the owner of many birds should get by the gallon, are maize, sunflower (both the large and small varieties), sesame*, Indian millet, oats, and wheat; and of seeds purchased by the pint—teazle, thistle, if obtainable, mixed grass seed, and maw seed.

For the more delicate soft-food eaters, the best basis is, in my opinion, provided by Huntly & Palmer's mixed broken biscuits, at 3d per pound. Grind the biscuits to powder in a coffee mill, and keep dry in tins ready for use. The next ingredient is preserved yolk of egg, either in flake or powder, which can be purchased from most of the larger dealers and importers. I prefer the flake myself, because if rubbed between the hands before using, it is reduced to a size which birds can easily pick up and swallow, whereas in the powder form a good deal is wasted, in the food left over at the end of each day.

Ants' eggs form a third ingredient of value in insectivorous food, and dried flies may be added if the bird-lover wishes; personally I prefer to mix in a certain quantity of some widely recognised wholesome food, such as Abrahams' Insectivorous Bird Food, Arthur's, Fulljames', or Gasparin's, my only objection to the last-named being its smell of aniseed or some such unpleasant ingredient (which, although doubtless a good stomachic, the birds have to get used to before they will eat it freely).

Of the fruits most valuable, because obtainable for a great part of the year, and generally liked by fruit-eating birds, may be specially mentioned—bananas, sweet-water grapes, oranges (when ripe), pears, and apples. When oranges become scarce or sour, it is generally possible to get pears; if neither are satisfactory, apples, baked and mixed with castor sugar, will do fairly well.

At the proper season many of the small fruits and berries grown in this country make a pleasant change, but these should be given with judgment, not recklessly. Some years since I had six Pine Grosbeaks sent to me as a present from Canada, and the gentleman who kindly brought them over for me informed me that the favourite food of these birds in Canada consisted of berries of the mountain ash. As I had a tree with berries on in my garden, I offered the birds a bunch, which poisoned two of them. I am told that the Canadian mountain ash is not the same as ours, but

* Sesame seed is kept by Messrs. Prashkauer & Co., of 112 Fenchurch Street, London; also of Liverpool, Manchester, and Hull.



GROTT OF JAVA SPARROWS.

whether or no this is a fact, I am not botanist enough to say; one thing, however, is certain, that food eaten freely by birds when at liberty sometimes makes them seriously ill when the same birds are confined even in a fairly large aviary; for this reason I would never offer ivy berries, though I believe that elderberries and haws are quite wholesome. Among seeds which are freely used by many keepers of British birds are several which I formerly gave as a matter of course. I found, nevertheless, that I lost many birds in my aviaries, either from diarrhœa or excess of fat, and I thought for some time that hemp was the cause of the mortality. I gave no hemp for a time, but still the death rate remained high; therefore I removed other seeds, replacing the hemp as before. By thus experimenting I discovered that flax, iuga, and black rape were at the bottom of all the mischief; for this reason I always warn aviculturists against the use of these seeds. Flax is a favourite food with some Finches when wild, but I am sure it does not suit them in captivity.

Of the nuts most useful for bird food I think walnuts and Barcelonas are the best; Brazil nuts are too oily, and monkey nuts are always rejected in favour of crack-nuts. A reader of *The Feathered World* took a great deal of trouble recently to obtain palm nuts, because I had mentioned them as one of the foods of the Grey Parrot when at liberty; she very kindly sent me some samples of palm kernels, black-looking things shaped like chocolate creams. I confess I had not the courage to offer them to my bird. For an aviary of Tits a suspended cocoanut, with a piece sawn off, so that the birds can get at the nut, is very useful; if you hang one up in your garden in the winter you will soon see the Tits at work upon it.

Now, to come down to special foods for special birds. As

canary seed is the most important for the true Finches (*Fringillide*), so white millet and spray millet are most important for the weaving Finches (*Ploceide*); nevertheless some of these prefer canary; therefore it is best to keep millet and canary mixed in equal parts for these birds.* The same, with the addition of a sprinkling of oats, forms the best mixture for Java Sparrows, Pintailed Nonpareils, Lovebirds, Budgerigars, and some of the other smaller Parakeets; but you must not assume that it will do for all; indeed, the supposition that one mixture will answer equally well for all kinds of Finches, or all kinds of Parrots, and the fact that mixtures



DR. BUTLER FEEDING HIS BIRDS.

under the name of "Finch food" or "Parrot food" are freely advertised, are a most fruitful cause of disease and death.

Birds of the Serin group (to which the Canary belongs) and Linnets do better on canary and German rape (or, in the case of the African Serins, upon canary and millet), with the addition of a little hemp when they are breeding or molting, than on anything else. Siskins and Goldfinches require hemp, with a sprinkling of teasle, thistle, or dandelion at all times. Chaffinches and Buntings should have oats added to their mixture; indeed, all the true Finches, which are strong enough to husk them, like oats, and are

* A little grass seed may be added in the winter.

none the worse for them. Grosbeaks delight in sunflower seed, and so do many of the thick-billed Finches; but the small variety should be used for birds of the Bullfinch group, for they cannot readily crack the larger seed.

Maw seed is a favourite with some birds, and especially with Siskins and Goldfinches; it is useful to sprinkle over egg-food, to induce these birds to eat the latter, when they require building up, and I believe it to be quite innocent, in spite of its being the seed of a poppy.

The smallest Doves feed chiefly upon millet and canary (excepting, of course, the tiny Fruit-pigeons, which are hardly ever imported). For the larger Doves the addition of dari, and, in some cases, wheat and hemp, is necessary; whereas the largest pigeons require a further addition of maize. With slight modifications this rule may be applied to Parrots, the exclusively fruit or honey-eating forms being excepted.

The larger insectivorous, frugivorous, and partly carnivorous birds do well upon a staple diet of two parts crumb of stale household bread, one part preserved yolk of egg, and one part ants' eggs; but, as already mentioned, the smaller and more delicate species do better with sweet biscuits in place of (or in addition to) the bread. The mixture may be slightly damped by a sprinkling of water, or by adding boiled potato cooked on the preceding day, and pressed through a masher, or grated carrot. Of course, insects, fruit, and meat must be added where required; or, in the case of Larks, and Pipits, insects and canary seed.

In winter the best vegetable food that I know of is either apple, or cress made of rape seedlings. It is always easy to sow a few pots or boxes with rape seed; and whatever may be asserted to the contrary, I do not believe that frosted green food is good for any bird; in summer, however, groundsel, chickweed, dandelion leaves, and grass in flower or seed, are most useful.

I believe that all insectivorous birds delight in mealworms, wireworms, and many other small beetle larvæ; they are also fond of centipedes, and simply crazy for spiders; many of the larger species and some of the smaller ones are delighted with cockroaches, but Hagnests and Troupials do not care much for them, and Mocking-birds let them alone.

Carnivorous cage-birds are fond of mice, nestling sparrows, and eggs, and I believe that a certain quantity of such food is needful to keep them in vigorous health.



CHAPTER IV.

ON HAND-REARING BIRDS.

THE subject of food, discussed in my last chapter, may be fitly followed by hints on rearing young birds by hand. Although this will chiefly affect British cage-birds, there may be cases in which the treatment will have to be applied to foreigners.

After varied experience in hand-rearing British nestlings, I am convinced that the old method of giving meat to the young of any but carnivorous birds is utterly wrong; and, in nine cases out of ten, terminates in the death of the young birds from diarrhœa, cramp, or fits.

It would naturally be supposed that seed-eaters would be easier to rear than insectivorous birds, but this is far from being the case; indeed, I consider them more uncertain; probably the young of Finches when hand-reared miss the partial digestion which is carried on in the crop of the parent before the food is regurgitated for their benefit. Many of the insect-eating birds, and especially the Thrushes, swallow and regurgitate dry insects several times in order to thoroughly moisten them before passing them into the mouths of their young, just as I remember to have seen a nurse moisten a sponge cake in her mouth before giving it to a baby; the idea was horrible, but I daresay the result was beneficial.

For the above reasons, the best results are always obtained when the food given to very young birds is mixed very moist, and I have found a drop of water administered with the little finger at the end of a meal very much appreciated by baby birds.

As I prefaced the study of aviculture by collecting eggs and nests, it can readily be understood that the first birds I ever kept were Britishers, taken from the nest when about eight days old and hand-reared. I began with the easiest—Missel Thrush, Song Thrush, Blackbird, Starling—and reared a good many, losing very few. I used to feed them chiefly on a paste made of two parts oat flour ("fig dust," so called), and one part pea flour, with the addition of small worms, smooth caterpillars, and snails dropped into hot water, taken from the shells and cut up; it was messy work! I tried raw beef once or twice, but finding that it gave the birds diarrhœa, and that one or two died from cramp, I discontinued it, with much more satisfactory results.

Although the coarser birds can easily be reared upon the above food, I found later on that a mixture of stale bread, yolk of egg, and ants' eggs agree better with the youngsters; therefore I always recommend it in preference to the other.

I often wish I had been able to arrange my holidays at a time when more of the smaller insectivorous birds were ready to take,

but I was so busy making my collection of birds' eggs that I could not afford to lose the chance of securing fresh clutches for the sake of adding to my live stock; consequently I was generally too early to obtain the latter.

Of the smaller Thrushes a nest of Robins was brought to me by a lad, who declared that it was a nest of Nightingales. I told him that he was mistaken, but sent him away happy with a shilling and advised him to try again; yet I did not get a nest of genuine Nightingales until, I think, two or three years later. I fed the Robins at first on biscuit, egg, and ants' eggs made into a stiff paste, and they were doing well upon this, when I must needs give them some finely-minced raw meat, which killed the whole of them immediately. I was more fortunate with the Nightingales, though I again tried a little meat for a day or two; as, after losing two, I returned to a mixture of four parts pounded dog-biscuit, four parts oat flour, two parts pea flour, two parts yolk of egg, one part ants' eggs, mixed into a moist paste. On this strange mess I succeeded in rearing the three others.

Undoubtedly the best food for rearing young Nightingales should be made of two parts sweet biscuit, to one part yolk of egg, and one part ants' eggs, made very moist, until the birds are able to feed themselves. As for sheep's heart, boiled and grated, I don't for a moment believe in it. I am sure that it was this meat diet which prevented the late Dr. Bradburn from successfully rearing Wagtails. In his book *British Birds*, he observes: "Never attempt to hand-rear Wagtails of any description, or you will fail," whereas I succeeded without the least trouble. Dr. Bradburn's book, in most respects, is a valuable one, and contains much useful information; but he was mistaken in giving meat to young insectivorous birds.

Of course, when rearing the more delicate soft-billed species, if you can obtain plenty of fresh wasp grubs or living ants' eggs, you will find them most useful as a change from the usual paste; but even if these cannot be secured, small, smooth caterpillars, or even mealworms cut in half, answer the purpose tolerably well; and house flies, pinched between the fingers, are not to be despised.

Of the Warblers I was only able to get hold of the Lesser Whitethroat and the Sedge Warbler, rearing two out of four of the former upon Abrahams' Insectivorous Food well moistened, and one out of two of the latter upon the same mess upon which my Nightingales were reared. In both cases the birds became too fat, and, whilst still young, died of apoplexy. Had I fed them upon biscuit, egg, and ants' eggs, I should probably have kept them all in perfect health.

I once took a nest of young Hedge Sparrows when at a great distance from home, and, in order to stay their stomachs, gave them part of my lunch, which consisted of a meat pie. When I got home in the evening I mixed up some hard-boiled egg and sweet biscuit for them, but they only lived a day or two. They should have had plenty of ants' eggs and other insect food. Of the Tits, I tried the

Great Tit, the Cole Tit, and the Blue Tit, but was only perfectly successful with the last mentioned, although all living until able to fly. The great Tits killed themselves by eating some wadding which had been put into their beds to keep them warm, and the Cole Tits, which I had to leave to the tender mercies of a young girl, who at that time looked after my birds when I was up in town, were allowed to get into so filthy a condition that they did not have a chance. Of the Blue Tits I received a nest of ten, and successfully reared five upon a mixture of Abrahams' food, biscuit, egg, and ants' eggs. I believe it was on the first occasion when our Editor visited me that she found me in one of my aviaries with these youngsters clambering all over me; I know it was one of my bird-loving friends.

I have reared the Pied Wagtail, and do not doubt that I should have been successful with the whole of the family if a cat had not taken all but one from the nest whilst I was consulting with my wife as to her willingness to feed them during my absence in town. I hardly expected to be successful, because the remaining baby was not discovered until the following day, shivering and wheezing behind a board. We warmed it up, put it in a cage with a thick layer of moss over the bottom, and covered it with a piece of warm flannel. It was fed upon the same food as my Blue Tits, and lived to be the family pet for several years.

No birds that you can hand-rear make more interesting and intelligent pets than Wagtails; and therefore I would recommend all who have the chance to jump at it. They are not only perfect companions and playmates; they not only vary their calls so that you can quite comprehend when they scold, expostulate, or beg to be let out for a flight, but they sing their pretty wild song as you rarely, if ever, hear it from the wild bird.

I might have tried the Meadow Pipit, but, being on a visit, did not want the bother with such common birds, and no later opportunity has offered.

But these notes are getting too prolix; therefore I will summarise the remainder. I have reared House Martins and Sand Martins on biscuit, egg, and ants' eggs, but they ate too greedily, and took too little exercise; therefore they did not live very long. Of Finches I have only successfully reared Chaffinches and Linnets, not having been able to obtain others when I wanted them. I found biscuit, egg, and small green caterpillars do well until they began to peck; then scalded seed had to be given in a separate pot. Unless kept apart from other birds, I found that these hand-reared Finches became wilder than those which had been caught; but if caged separately, played with, and allowed to fly about a room, they remained as tame as insectivorous birds.

I received my Jay when it was beginning to feed itself; it had been reared upon sopped bread and minced raw beef, and, as it was in good health, I suppose this is sufficient for very young birds of the Crow family. My Wrynecks were a little too old when I took

them, were rather troublesome to rear, and did not survive the winter; and, as for the Cuckoo, although it will eat anything and everything that you like to offer I never want to rear another.

One of the principal things in rearing birds is to keep them warm at night. At first keep them in the nest in which they are found, and cover them with flannel; the nest may be fixed in a basket of hay (with a lid to shut up), but, in the case of Skylarks, of which I have reared a good number, get a long cage (a Lark-runner), cut a round hole in a turf, fix in this a Whitethroat's nest, and throw a folded flannel over it at night. Don't try Swifts; they are not satisfactory, and do not live long, though they will eat the usual mixture.

CHAPTER V.

ON SEXUAL DIFFERENCES.

To any aviculturist who keeps more than a dozen or so birds in cages for song or plumage, the idea of increasing his stock by breeding must seem most desirable. Before he can effect this, it is necessary that he should convince himself, as far as possible, that his breeding stock is correctly paired.

In many cases it is easy to see at a glance the differences which distinguish the sexes of birds; either the plumage is quite dissimilar, or the males are ornamented with crests, tufts, wattles, or such like distinctive characters, which indicate their sex. On the other hand, there are many birds so similar in the sexes that it requires study and a trained eye to pair them correctly, and although in many cases a man may make a lucky hit by pairing a sprightly, upstanding bird with a heavier and more quiet-looking one, the result is by no means invariably satisfactory.

For some years past I have devoted a good deal of time to the study of this subject, but there still remains an immense deal to be learnt before we can, in all cases, be sure of sexing our birds with certainty; even song does not in all cases indicate a cock-bird, for the hens of many birds sing almost, if not quite, as well as their mates. I never heard the hen of a wild Skylark sing, but I had a hand-reared hen which strutted about with erected crest, and sang remarkably well; indeed, I was doubtful whether it might not be a small cock-bird until it deposited an egg on the floor of its aviary.

The sexes of the true Thrushes can be told by comparing the birds side by side, the males being longer than the females, with narrower crowns, and longer, more slender bills. Some of the

Thrushes, as, for instance, the Blackbird group, and many of the Chats, differ very greatly in colouring; the Robin chiefly in the colouring of the throat and the feathers all round the base of the bill. I have not yet had an opportunity of carefully comparing the Warblers, but many of them show tolerably well-defined differences of plumage.

So far as I have examined the Babbling Thrushes, I am disposed to think that the characters of bill, width of skull, and length are indicative of groups, and are not constant to the whole family (*Timeliidae*). I think, as a rule, the males are rather larger than the females, but have stouter bills, though the latter difference is sometimes very ill-defined. In many cases there are marked distinctions in the plumage.



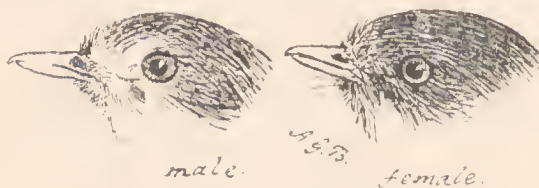
HEAD OF BLUE-BIRD.

BILLS OF MALE AND
FEMALE BLACKBIRDS.

The Starlings and many other groups I have hitherto not been able to examine critically;* but in the true Crows I believe the males all have stouter and shorter bills than the females, whereas the reverse is the case with the Whistling Crows, which are considered to be related to the Shrikes. In Finches the structure of the head varies remarkably, according to the habits of the species, though in some the differences are so slight as to be of little practical use. When neither colouring nor form of beak assist one, the length of the wing is well worth examining, that of the male being usually (if not invariably) greater than in the female. When opening the wings for comparison well-defined colour differences may sometimes be noticed, as in the Linnet and Pope-Cardinal. I think if the wings of the sexes in birds were carefully compared it would be found that, in proportion to their relative size, the wings of male birds are generally longer than those of females; that cock-birds are in fact more powerful in flight than hens. It is probably on this account that during their migrations the flocks are often found to be all of one sex, and thus a large importation of some common species may consist entirely of either cocks or hens. A few years ago there was a large importation of

* Since writing the above I have compared the sexes in various groups of Starlings and find that the differences, though less strongly defined, are similar to those in Thrushes.

Pekin Nightingales, and these birds were being sold in the London bird shops at very low prices. I bought three dozen, and selected what I supposed were sexes (judging them by colour of throat and



SEXUAL DIFFERENCES IN HEADS OF ROBINS.

wing alone); not one of these birds ever came into song, nor did any of them ever lose the black stain at the base of the bill.

Where there are no marked colour differences in the plumage of the sexes of Parrots, you should examine the cere and the iris, and see whether these do not show sexual distinctions. If you fail in this, examine the outline of the bare patch on the face (common in many Parrots), whether rounded or somewhat pointed at the back; feel the hinder angle of the lower jaw, and see whether there is not a marked difference in the pointed or rounded character of that angle; note whether the crown is short and arched, or long and flattish; and, lastly, whether there is not a noticeable discrepancy in the length of the wing. Some of these characters are sure to help you unless your appreciation of differences is defective, in which case you may possibly be successful if you select the largest and smallest birds from a batch.

Of the sexing of uniformly coloured Doves little is known, therefore large and small examples are generally put together as pairs, often with happy results. I, however, some years since, lost the hen of a pair of Bar-shouldered Doves, and replaced it by a bird smaller than my male, which was confidently regarded as a



SEXUAL DIFFERENCES IN BILLS AND HEAD OF PEKIN NIGHTINGALE.

hen. After it had been half murdered by my older bird I discovered that it was only a small cock. I easily paired up some Steel-barred Doves by the form of the bill, but I believe most males of this group of birds can be distinguished from the females by their prominent foreheads; in those which show differences in the plumage this swollen front is frequently of a distinct colour from the forehead of the hen.

Although the preceding few hints are far from exhaustive, they will at anyrate put the buyer in a better position than if he had to watch to see whether a bird sang or not before he felt happy about it, or even than one who (following the advice sometimes given by that renowned bird-student, the late Dr. Carl Russ) considered it necessary to purchase half-a-dozen or more examples in order to ensure getting both sexes. As I have already pointed out, this result would even then not be at all certain. In the case of birds which show sexual difference in the plumage or colour of beak, the differences often need to be looked for, as in the Goldfinch, the Linnet, the Martinican Dove, in which the violet neck-patch is smaller in the hen; the Bronze Mannikin, in which the metallic green patch is smaller in that sex; the Diamond Sparrow, in which the female shows a pale pink line across the base of its crimson beak; the Bichenso Finch, in which the belts across the throat and breast are slightly broader in the male than in the female; the



SHOWING RELATIVE SIZES IN MALE AND FEMALE OF THE SKYLARK.

Rosella Parakeet, in which (according to the late Mr. Abrahams) the female shows a small spot of green in the crimson at the back of the neck; with many others.

No difference of colouring should be regarded as unimportant, the glossy instead of dull black on the crown, the deeper or less ruddy colouring of the upper parts generally, the purer or whiter

under parts, the brillance of red or yellow patches, are frequent characteristics of male-birds.

Many dealers who do not know intelligently how to sex birds are yet able to pick out pairs with a certain amount of facility. They will say, "That's a pair; you see, that bird looks like a female." The fact is they see the actual difference of outline, with-



SHOWING THE DIFFERENCES IN HEADS OF MALE AND FEMALE OF THE
GREY PARROT.

out being able to say in what that difference consists. It is useful to possess this faculty, because it saves time in catching birds for examination out of a number; but it is not safe to depend upon it. The test applied by bird-catchers when netting Larks was a safer one. They grasped each bird with the hand, saving the broad-chested cocks, but killing the narrower-chested hens in the nets, to be sold at so much a dozen to the poulterers. As a bird-catcher once said to me, "You can always tell a cock Lark by the feel, because it's a handful." A seasoned bird-catcher generally knows pretty well what he is about.

Even the best informed and sharpest dealer may sometimes make mistakes if he is a bit flurried, or his sight blurred by a troublesome liver; so if you occasionally chance to get the wrong sex from an intelligent man do not be too hard upon him. I have known the best man in the trade to make two mistakes in the sexes of birds which he sent to me. In the first instance I wrote for a pair of white Java Sparrows, and he sent me two birds which quarrelled incessantly. As I had received them from so great an authority I kept them together in a large flight cage for a year without result. I then wrote and told him that as his first "pair" undoubtedly consisted of two cock-birds, I would be glad if he would send me an undoubted pair. This he did, but passed on the joke of my having tried to breed from two cocks for a whole year. However, I turned the tables by replying, "Quite true; but you must remember that you sent them to me as a pair." The second error was a more excusable one, there being very little sexual difference.

CHAPTER VI.

ON ARRANGEMENTS FOR BREEDING.

WHEN you have decided what birds you wish to breed, and have sexed them to your satisfaction, the next thing is to prepare the breeding-cages or aviaries for their reception. It does not follow, because you may have bred Canaries successfully in the ordinary cages sold for that purpose, that you will be able to breed other birds in the same manner, or with equal ease.

Thrushes as a rule are not very shy birds; and although they prefer a little privacy, they may be (and have been) induced to breed quite successfully even in a large cage. In an aviary a few rough branches artistically arranged in a corner will afford all the privacy which they need; and for some species, if good-sized boxes, of the cigar-box pattern, are provided as nesting receptacles, even the little cover and support offered by naked branches will not be necessary. For these and all insectivorous birds you must be prepared to provide abundance of living food, or the young will probably be thrown out of the nest when quite unable to provide for themselves.

I should not expect to be successful in breeding Warblers, excepting in a large outdoor aviary, well-furnished with shrubs, brambles and nettles; a small wilderness, enclosed and netted in, would be most suitable. Even then much insect food would have to be added to that which the birds could secure in the limited space devoted to them. A similar wild aviary would also be most satisfactory for Pekin Nightingales (which, although very tame in captivity, are by nature the most shy of skulking birds), of Bulbuls, Fruit and Honey-suckers, Sugar-birds, and Tanagers.

Finches vary enormously in their fancies. Chaffinches will build either in bushes or on branches; but, as a rule, they do not like their nests to be too conspicuous; consequently they make them of the materials nearest to hand (or I should say "to beak"), and thus occasionally render them remarkably conspicuous; thus I took a nest from an elm hedge on the margin of a wood the whole outside of which was thickly covered with white lichen from a tree a few yards off; it stood out like a large Guelder-rose against the green foliage.

The Alario Finch, and all the Serin group, will build in boxes or Hartz cages, generally preferring the latter, which are also chosen by Goldfinches.

The Buntings seem to prefer to build their nests openly in bushes; but green Cardinals, with me, built in a large suspended wicker cage which I received from India; they feed their young at first largely upon egg-food, like the true Finches previously

mentioned; but, as the young begin to feather, great quantities of insects are given, sometimes regurgitated, sometimes merely broken up. Bullfinches and Grossbeaks prefer bushes to anything else. I found that the White-throated Finch suspended its lace-like nest high up in a furze bush which I had fixed in the wall; it was formed of the finest tough willow fibre (most dangerous to other birds, which are liable to get hung up in it).

I have had more nests built by Waxbills in bushes than in any kind of receptacle; but green Avadavats built and laid in a cigar nest-box, and would probably have hatched out if they had not been disturbed. A Cordon Blen, paired to a Grey Waxbill, built in a Hartz cage in 1902, but without result.

The Grass Finches and Mannikins seem to prefer cigar nest-boxes and Hartz cages to anything else for building their nests in;

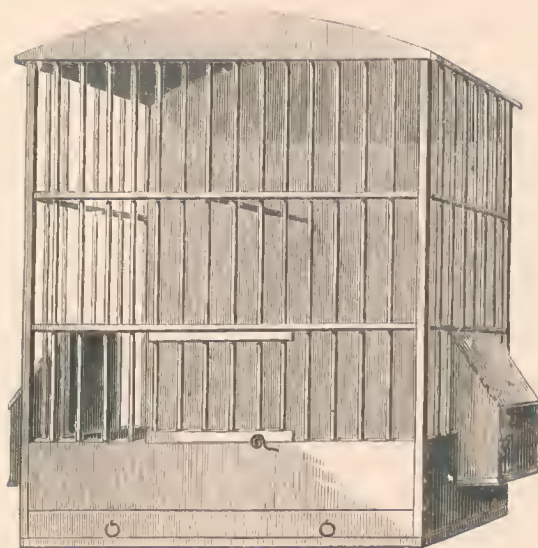


THE HARTZ-CAGE AS A NESTING RECEPTACLE.

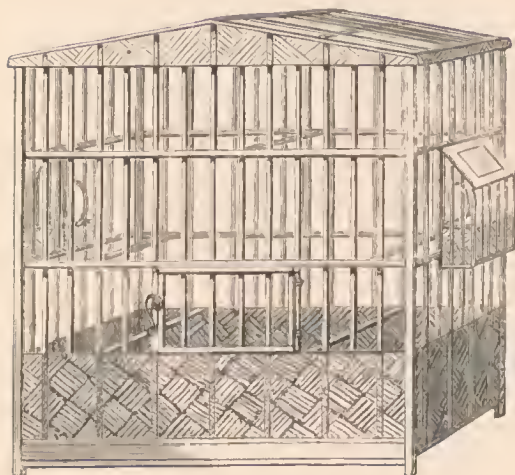
some of them, like the Waxbills, succeed best in rearing their young if supplied with a certain amount of insect food, such as living ants' eggs, small green caterpillars, cut-up mealworms, or blight from rose-trees; others, like the Zebra Finch, Ribbon Finch, Diamond Sparrow, Parson Finch, Java Sparrow, etc., do very well upon moistened egg, bisenit, and dried ants' eggs, or even on dry Madeira cake.

To be successful in breeding Whydahs and Weavers, one ought to enclose part of a broad dike, with reeds and rushes *in situ*. Many of the Weavers will build, and sometimes even lay, in bird-room and covered aviary; but hatching and rearing the young in such enclosures are rarely successfully carried out. A similar arrangement to that proposed for Whydahs and Weavers, but with the addition of a strip of wild meadow land, ought to suit the Marsh Birds and Meadow Starlings, but the Hangnests would require branches from which to suspend their nests.

Most of the true Starlings build in holes, and should be supplied with suitable covered boxes, hollow branches, or log-nests, with



CAGE FOR THRUSH.

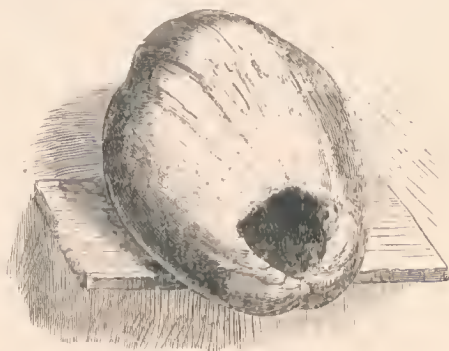


CAGE FOR BLACKBIRD.

These are the Cages usually sold for Thrushes and Blackbirds ; but they are hardly large enough.

abundance of feathers, hay, cow-hair, etc. They will require much insect food and plenty of small earthworms when feeding their young, and it is said to be a good plan to mix the worms with earth and place the whole in a pan, so that the birds may search for them as required; I adopted this plan also when breeding Blue Robins (which are Thrushes).

If you desire to breed any of the Crows, a small aviary with plenty of rough cover—such as a large pile of bare branches, and perhaps a few upright bushes partly screening the latter in front—should be devoted to each pair, and abundance of animal food, such as worms, grubs, insects, nestling Sparrows, mice, shrews, etc., supplied as soon as the hatching time approaches. For building the nests, twigs thick and thin, roots, bark, bast, hay, grass-weeds with the earth on, feathers, wool, and cow-hair would all be useful. For Larks, Pipits, and Wagtails you should have a rough sloping bank, partly clothed with grass, or a bit of rough wall with hollows and niches, partly screened by light bushes. The young would require plenty of insect food.

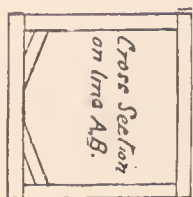
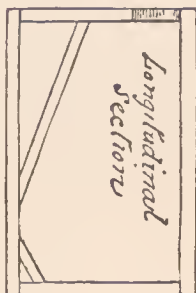
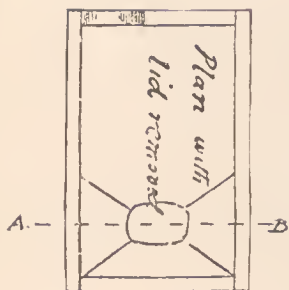
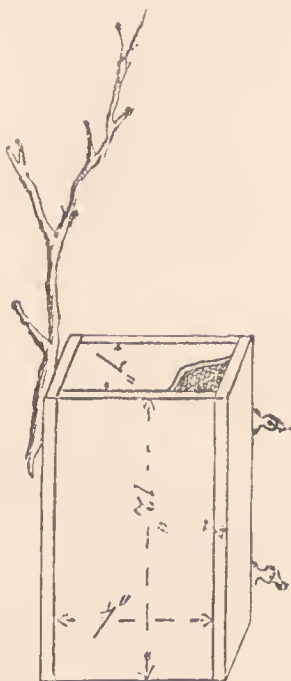


COCOA-NUT HUSK.

For the smaller game-birds, such as the Quails, a good patch of growing grass is almost indispensable, if you wish to ensure success; it is due to the lack of this that I have hitherto never got beyond nest and eggs with either the Californian or the Chinese Quail.

For breeding the larger Parrots, you would require an aviary quite as strongly built as the cages used for monkeys at the Zoo; thick branches might be fixed over one end, and small barrels, with a good-sized hole cut in one end by the use of a large centre-bit, placed here and there among the branches. With plenty of boiled maize, banana, nuts, and biscuit you might perhaps be successful. Some of these birds have been bred.

The Parrakeets with less powerful beaks, such as the Rosella group, the Ringnecks, Cockatiel, etc., will breed in ordinary aviaries, either in large log nests or in boxes specially prepared, as described and illustrated by Mr. Seth-Smith in *The Feathered World* for 13th October, 1899. (See opposite page).



NESTING BOX FOR PARAKEETS.

The Quaker Parrakeet requires a very strong aviary; it can easily bite through half-inch wire netting. It builds an enormous nest of twigs, and should have a heap of brushwood supported upon rough branches in which to build.

For Budgerigars small log nests or cocoanut husks answer very well, as they do also for Lovebirds; but the latter require small shavings of wood or bark, which they place at the bottom of the nesting receptacle as a bed for their eggs. They feed their young on seed only, whereas the larger Parrakeets do better if supplied daily with a saucer of soft food when breeding.*

To breed most of the Doves successfully, an outdoor aviary with plenty of cover is necessary; branches with Virginian creeper, ivy, wild clematis, or something of the kind trained over them, should be fixed up in the corners, or at the back, and plenty of twigs, roots, plant stalks, and grass-stems supplied; then perchance you may do well. Some Doves, such as the common Barbary Dove, the Half Collared and Senegal Turtles, the Necklaced Dove, and a few of the semi-domesticated foreign pigeons, will lay in boxes half



LOG-NEST FOR PARRAKEET.

filled with bran or sawdust, and rear their young without cover, in ordinary large aviaries, provided they are not disturbed by other birds; but as Doves are the most quarrelsome creatures when associated with others of their kind, success will be more certain if each pair be kept in a separate aviary.

* Mr. Seth-Smith, however, says that scalded bread and green food are of great assistance to these little Parrakeets.



FIG. 1.

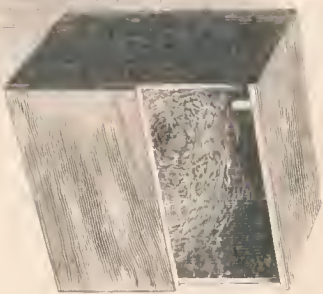


FIG. 2.

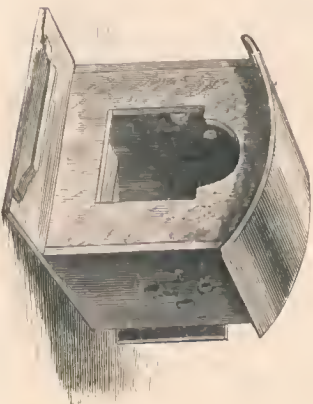


FIG. 3.

NESTS MADE OF CIGAR BOXES,
MAHOEANY NEST.

Doves are able to rear their young upon seed alone, which they partly digest and regurgitate, taking the bill of the young bird into their own and regularly pumping the food in. To any novice who sees this operation it looks as if the parent were trying to kill its offspring. If soft food is placed in the aviary I have repeatedly noticed that all Doves partake freely of it when breeding, just as my Rosa's Parrakeets did when they had young; it is therefore probable that they find it more easy to prepare for their young than seed alone.

One thing must on no account be forgotten by all who desire to breed birds: a plentiful supply of old mortar, cuttlefish bone, or slaked lime must either be scattered on the floor or put in a tray where the birds may easily find it. If this is not done egg-binding will be rather the rule than the exception, and many valuable birds may thereby lose their lives.

A lump of bay salt, occasionally damped with a little water, is a wholesome thing, and much appreciated by many birds.

Should any of your birds, in spite of all precautions, become egg-bound, drop a little salad oil on the vent, or insert a camel's hair pencil dipped in oil, then place the sufferer by itself in a warm cage and await results; in nine cases out of ten, by the following morning a soft egg will be deposited, and the bird will have recovered. Do not let it breed again immediately.

CHAPTER VII.

ON STUDYING THE HABITS OF BIRDS.

THE study of living birds is a fascinating one, whether one breeds them or not. If taken up from a proper motive, it should be used to add to the general sum of knowledge. Each man or woman who keeps birds should be wide awake to note everything of interest; to learn, if possible, some fact not hitherto recorded.

Whatever we do should not be undertaken solely for our own personal pleasure, but also to benefit our fellows. Every new fact which is recorded is one item added towards the comprehension of the book of Nature, one further step taken upon the endless but ever brightening road towards true science.

Facts dealing with the sexual differences of birds, of which I



have already spoken, represent one path in which the bird-keeper may be of use to his generation; but there are many other points in connection with bird life which have been but imperfectly dealt with by students. In many instances incorrect decisions have been come to upon very insufficient grounds, as when a well-known ornithologist asserted that the nests of birds were not built instinctively on certain lines, but only in imitation of the nest in which they were reared; in support of which assertion he cited the case of a Chaffinch imported into New Zealand, and presumably hand-reared, building a nest with a long pendant mass of material below it, supposed to be an imitation of the nest of some native New Zealand bird. Oddly enough, in Seebohm's "British Birds," Vol. II., p. 102, we read: "My friend, Mr. C. Doncaster, contributes the following note on a remarkable Chaffinch's nest, in the Peak district: 'On an old thorn tree by the river Derwent, near Baslow, the stem of which was covered with ivy, I saw a long strip of moss 2 ft. long and 4 in. wide attached to the ivy. I did not suspect that it was a nest, but touching it with my stick, a Chaffinch flew off from a nest with four eggs about 10 ft. from the ground. On looking closely I was astonished to find that this 2 ft. of moss was attached to and hanging from the nest, and that it was all manufactured by the bird, containing also lichen and wool, and the whole was attached to the ivy by horsehair.'"

Here, then, was a nest built by a wild English bird similar in character to that produced in New Zealand, but with no pattern in any English nest from which it could have been copied. On the other hand, it is well known that the domesticated Canary has for hundreds of years been bred in cages, usually forming its nest in a little square box, the circular nest pan being (I think) of comparatively recent origin.

If you turn out a pair of Canaries (bred in an ordinary London breeding cage) into an aviary in which there are bushes, but no square or round receptacles in which it can build, it forms a typical open Finch-nest in a bush, with no pattern-nest to copy from. In like manner, if you turn out a pair of Bengalees into such an aviary they form a covered nest with small entrance hole in front, just like other Mannikins, and again with no pattern from which to copy it. Now, we do not know when the Japanese first developed the Bengalee; even the stock from which it originated is not positively known, but it is not improbable that it has been bred in small box cages for a thousand years, perhaps longer; and yet the instinctive method of building has not changed.

What is instinct? It is an inherited arrangement of brain-cells built up in past ages and transmitted from parent to child through numerous generations. If a necessity arises instinct can be modified, the various methods adopted by the Swallow being an instance; and it is possible that abnormal nests, such as the Chaffinch nest already mentioned, may result from some slight derangement of the brain distorting the inherited design.

I have entered thus minutely into the preceding point in order to show how careful one should be not to jump to hasty conclusions, and also to show that something may be learned by watching how the same birds will build when subjected to varied conditions. Moreover, it is healthy exercise for your brain to ask yourself why these things are so. Why, for instance, does a Goldfinch when in an aviary like to build on the floor of a small suspended cage with a limited entrance passage in front? I think it is because in his wild state he prefers a solid basis for his nest, such as the lichen-covered branch of a tree, although he sometimes builds in a dense, many-branched portion of a hawthorn hedge, where the support is almost as solid, or he may build in more open branches; then, I think he prefers a small doorway, because it is easily defended against intruders. It is quite a mistake to suppose that birds do not think, for undoubtedly they do.

Another matter worth noting and recording is the history of the young bird. It is astonishing how little is known generally about birds in their nests. Keep a careful record of the colouring and number of the eggs, if possible, the duration of incubation, the appearance of the new-born chicks, the colouring of the nestling plumage, the time when the young leave the nest, how long they are before feeding themselves, how the parents feed them, the age at which the adult plumage is acquired; until all this is recorded the history of the young has not been mastered.

It has been stated that if you examine a nest the parents will desert it; and it is asked, How, then, can we record all the necessary details? It is true that with some birds you do run a risk, but with many you do not. Supposing that you examine a nest and discover a completed clutch of eggs, and then the birds desert it; you have, at anyrate, recorded the number; you can describe the colouring; you can even blow the eggs and preserve them for a collection. So much is gained, and the chances are that your birds will soon go to nest again, and you can let them alone that time and pay attention to something else. Some birds, however, do not desert their nests, even if you take the young in your hand, clean out the nest-box, put in fresh material, and replace the young.*

When one reflects, it becomes evident that the man who never comes in contact with living birds, but devotes the whole of his time to the study and description of bird skins, must depend upon the statements of field naturalists and collectors for descriptions of the soft parts, inasmuch as they entirely alter their colouring and character after death; even the tints of the plumage change greatly in many birds. This, then, is one of the points which the aviculturist can throw much light upon, whether he keeps his birds in cage or aviary.

It is astonishing to find many of the most familiar birds

* Mr. Farrar has laughed at this statement, which I published elsewhere; but it is none the less a fact, as he could discover if he would put it to the test.

incorrectly described as regards the colouring of their soft parts, especially when these change with the season or with age. You will see adult Jays in museums stuffed and provided with blue eyes; and some of the foreign pigeons which have plum-coloured eyes are provided with eyes of a hazel colour. Nor are these errors confined to the stuffed birds, but they appear in text-books for the instruction of the public. Until I kept the English Jay I believed the statement constantly repeated (and which, from lack of knowledge to the contrary, I repeated once again in "British Birds, with their Nests and Eggs") that the young had brown eyes, which became pale blue in the adult bird; the reverse being the case, excepting that the eyes of adult birds are rather vinous than brown.

Another point of interest is well worth putting on record—the manner in which the different birds court, their dances, postures, and methods of showing off to the hens.* These are most important to the taxidermist who wishes to produce a realistic group, and lack of knowledge often causes him to make ridiculous mistakes; he is apt to suppose that all pigeons show off in the manner of the domesticated Rock - Pigeon; therefore when he mounts an Australian Crested Pigeon or a Bronzewing he puffs out the breast, sets the head forward as if bowing, spreads and elevates the tail, and droops the wings so that they touch the ground; whereas the man who keeps these birds knows that the wings are half raised and expanded in front of the fan-like tail, so as to exhibit all their gorgeous metallic tints to the female. When birds are adorned with bright colours they are pretty certain to make the most of them for the delectation of their wives; and if their colouring is not especially gorgeous they try to please their partners by the most comical dances. The postures, wing-flappings, and lateral jumps of a Satin Bowerbird when courting are the most absurd exhibition imaginable.

The changes in plumage and the manner in which they take place have frequently been incorrectly described; therefore, these should be most carefully studied. An American writer has asserted that a feather when once perfected is devoid of life, and therefore incapable of change, an assertion which is easy to disprove if you keep a yellow or grey Wagtail in a large cage throughout the winter and watch it; or if you carefully note the changes which gradually take place in the plumage of many Finches, in some instances without the loss of a feather.

The actions of birds when perching, progressing over the ground, eating or drinking, their method of flight, and many other details of bird-life are well worthy of observation.

* See pp. 10 and 43.

CHAPTER VIII.

ON ILLNESSES AND WOUNDS.

I PRESUME that it will be expected that I should give a few hints respecting the illnesses and allied troubles of bird-life. I am not sure that there is much practical use in a chapter upon this subject, but perhaps there may be a little.

As we all know, "Prevention is better than cure," and given healthy birds to start with, also barring accidents, we know that the life of feathered captives may be prolonged to far beyond the natural limit arrived at by the feathered savage.

If birds are healthy, and kept clean, take plenty of exercise, are not too much coddled, are correctly fed, and have fresh air, there is no obvious reason why they should get ill. The only trouble is that they may themselves court disaster by self-indulgence, ambition, or senseless rage. The passions which mankind exhibits are identical with those of other animals, and when not controlled by commonsense and regard for law and order, are equally destructive to all alike.

Do you disbelieve in self-indulgent birds? Watch that little Twite driving every other bird from the seed-pan until he has gorged himself to repletion with hemp seed; or that Redstart, who keeps his wife from the soft food until he has swallowed all the largest fragments of yolk of egg. Is not that self-indulgence? Greed is a common fault with all wild creatures, as it is one of the greatest and commonest sins of mankind, and its product is disease and death.

Can a bird show ambition? Certainly. I was once watching two cock canaries in one of my aviaries, one singing against the other; louder and louder they sang until the din became almost unbearable; suddenly, with a last half-choked shout, one of them dropped from its branch like a stone, killed in a second by its effort to outdo its brother, through the bursting of a blood-vessel. As for senseless rage, nobody who has kept birds need be assured that this is of frequent occurrence among feathered bipeds.

How can such things be avoided? To a certain extent they can be, for the greedy bird may be often placed with companions whose food is plain and wholesome. Thus a Twite does not require hemp, and is better without it. If his companions are Grassfinches, a little German rape added to their mixture of canary seed and millet will not tempt him to lay on superfluous fat. It is also not necessary to associate two cock-birds of any species of loud-voiced and assertive songsters in the same aviary. Lastly, as I have already said in a former chapter, all spiteful birds should be caught

with as little delay as possible and placed where they can do no harm to themselves or others.

Another point bearing upon the preventive side of the health question is one which becomes natural to the aviculturist of experience, although he may sometimes have a relapse when he acquires a very rare or expensive bird. This point is, not to be over anxious, not to imagine evil where none exists, not to look at a bird and wonder whether it is as active and its eye as bright as it was yesterday. My friends, do not you know that half the invalids in civilised countries are only the victims of their imaginings? Have you never read of the criminal who, for scientific purposes, was handed over to the medical profession ostensibly to be bled to death; and after he had been blindfolded, water was trickled slowly over his arm, so that he imagined that his life was being drained away, and thus he died of fright alone? It is quite possible. Even when disease exists, treatment for that disease sometimes hastens death; especially this is the case when the remedies given are unnecessarily heroic; but, in the case of imaginary diseases, a certain heroic treatment is sometimes useful. I have pointed out that human beings may imagine themselves into their graves, and it is certain that the absence of any desire to live is not an unknown cause of death; it has even been stated (though I cannot remember now where I read the statement) that men of certain races can die voluntarily. Whether the latter be true or not, I believe that birds, when much alarmed or dispirited, can determine to die, and unless roused, will soon succumb to this determination.

On one occasion I had a Goldfinch which became dispirited. Whether it resented confinement in a small aviary, disliked its companions, or was dissatisfied with its food, I don't know, but it persistently went into the corner, and stood with its face to the wall. This bird had been active and jubilant enough in the morning, when the sun was shining, and I did not believe it had anything the matter with it, so I thought I would give it something to grumble at. I got a syringe, and squirted cold water over it until it was quite wet, and in two seconds it was out of the corner and up on a perch squeezing the water out of its feathers. It lived to be quite an old stager. On another occasion I turned a Siskin, which I had kept as a pet in a canary cage for over a year, into one of my bird-room aviaries. It was horribly frightened, flew madly about for a minute, then went into a corner and stood with its face to the wall. I picked it up, restored it to its cage, and it returned to its perch. I gave that bird to a friend, and it lived on for about two years in captivity.

To physic a bird when it is perfectly healthy can hardly be conducive to its wellbeing, and to overdose a sick bird is, often, to kill it. For this reason I rarely give medicine to any of my own birds, and only recommend moderate treatment for those of others. A correspondent who had a sick Linnet, informed me that he had given it three drops of castor oil, and the bird had died. I was not

surprised. I would have done the same if I had been the bird, though I am told that birds will stand a dose of medicine which, if given in proportionate quantity to a man, would not only kill him at once, but almost make him wonder if he had ever lived. It may be so; I don't know. Personally, I should think he would know all about it better than those he left behind. I should never recommend more than one drop of castor oil for any small bird, and, unless it was in a very bad way, I should always prefer Epsom salts. I have found the former useful in cases of cramp, but the latter is certainly safer for enteritis. For the larger birds castor oil is often invaluable.

Asthma is a common disease among birds; it is distressing at all times to listen to, and it takes a long time to kill a bird, which (as it is a recurrent trouble) is perhaps not an unmixed blessing. The temporary remedy for asthma in birds is glycerine, with or without an admixture of gum arabic; but the dose must be proportioned to the size of the bird, as an excessive quantity is fatal; yet we can take glycerine instead of cod liver oil without risk, which shows that birds cannot always take larger doses of physic than we can. Asthma being a very weakening complaint, as soon as the bird's breathing gets right, a tonic should be given.

Now, although I am asked frequently for the proper treatment for birds suffering from typhoid, liver disease, and other deadly maladies, and I always do my best to recommend the approved remedies, I frankly admit that I never use them myself. I believe that for most of the ills to which birds are liable, a steady, equable, warm temperature is the best thing, and if a bird is so diseased that warmth will not bring it round, it is better that it should die. In February, 1902, one of my Weaver birds went wrong in its moult, became too weak to fly, and had to be transferred to a cage; for a day or two it seemed better, then rapidly grew worse, until one morning I found it lying on its back with its feet turned back, its eyes shut, its head moving slowly from side to side. If I had left that bird as it was, half an hour would have seen the end of it. I got a travelling-cage (the sort with a wire door which slides up and down), put in seed and a little pot of water, placed the bird inside, and stood the cage on the radiator in my conservatory. In an hour that bird was on a perch and able to feed. After a week I turned him out, and he flew about recklessly. I returned him to his cage, and replaced it on the radiator; though still rather weak, the bird got successfully through his moult. Nevertheless, he died a few weeks later.

Warmth (as previously stated) is the best and safest remedy for egg-binding, and if a drop of olive oil is inserted into the vent with a camel's-hair pencil before the bird is placed in the warm cage, the cure is tolerably certain, though the trouble is likely to recur if you permit the patient to go on breeding.

The best thing for wounds and sores is vaseline; fractures in legs, if simple, may be put right with splints made of split quills

bound over the broken limb; but I always think amputation preferable for a compound fracture. A broken wing is difficult to bind up; it requires a special brace, and even then may slip out of place; therefore, I always leave it to unite of itself and risk a drooping wing. For all tumours and cancerous growths, it is best that the aviculturist should consult a veterinary surgeon, unless he himself possesses some surgical skill.

CHAPTER IX.

ON BIRD SHOWS, SEASONAL CHANGES, AND NEST-BUILDING.

WHEN one keeps birds it is for some definite reason. Frequently the only objects which the aviculturist has in view are a longing for occupation, a hobby with which to pass away leisure hours, and a love for the beauties of Nature. Some satisfy this craving by devoting themselves to horticulture, others to aviculture, still more to that section of bird-study known as "the Fancy." The term "fancier" is applicable only to the man who confines his attention to those variations and freaks which man has developed from a few forms of animal life, which, from their great liability to vary, have enabled him to mould them, by careful selection, into almost every imaginable shape. On the other hand, the term "aviculturist," meaning one who has the care of birds, although in its wider sense it might be applied to the poultry, pigeon, or canary fancier, has come by usage to mean one who has the care of birds as species, not of variations, produced by man's agency. When we speak of an "aviculturist," therefore, we do not mean a "fancier."

Among aviculturists the nearest approach to a fancier is the man who *only* keeps his birds for show purposes, a mild form of gambler, who, through he may not desire to make a big profit by the business, nevertheless hopes to cover at least a part of his expenses. I feel some sympathy with men who send some of their birds for exhibition, but none with those who only keep them for that purpose. In the latter class (though not of necessity) you find those who attempt to increase the brilliancy of their birds by dyeing them with colour-feed, who pluck out a feather here and there to produce a better show specimen, or perhaps, having been successful, adopt a certain type of cage, so that they may be recognised as *the owner's* on the show bench. I have heard all these tricks defended, but to me they are inexcusable.

I am often asked, "How shall I prepare my birds for the show bench?" I have one answer: "Keep them clean and in good

health." "Shall I wash them?" "No; let them wash themselves." "Shall I colour-feed them?" "No; if your birds are good enough to win on their own merits, let them win; if not, do not attempt to hoodwink the judge or the purchaser."

As for show points, those which are of most importance are steadiness combined with a sprightly erect carriage, brilliancy of colouring, definition of markings, and breadth or purity of distinctive patches (as in the cheeks or blaze of the Goldfinch and the white wing-patch of the Chaffinch), the colouring of beak and feet, and the perfect condition of the limbs.

The real end and object of a bird show is to increase the public interest in bird-keeping, to exhibit to the aviculturist birds which he would otherwise perhaps never see alive, and to give pleasure to all who delight in beauty; it also is of use in bringing together and introducing one lover of birds to another, and it enables the experienced man to instruct his pupil by giving him object-lessons. The late Mr. Abrahams put me up to several wrinkles, and tested my proficiency many times at bird shows, somewhat as follows:—"What are those?" "Diamond Sparrows." "You're another." "What are they?" "Two cocks." "Right; *you* know but the judge doesn't; he's given them a *first*." That sort of thing is good exercise for the learner.

What are the best kinds of show cages? Undoubtedly those which are as large as the regulations will permit them to be, and, at the same time, are so constructed as to show off the birds to the greatest advantage. For all the larger Parrots I do not think anything better than the all-wire cage, either domed or waggon-arched, has yet been discovered; and, in my opinion, *all* show cages should have the top wired as well as the front, for without a top light (particularly in the gloom of many show tents) it is impossible to see the birds properly.

One thing must be borne in mind by all who exhibit their birds, and that is, the great risk which they run of losing them. If they live at a distance, and have to forward their pets by road or rail, death may result in delays, careless handling, inquisitiveness, exposure, accident. If the birds arrive in safety, they may be so staged as to be subjected to incessant draughts; they may be so fed that there will be little hope of their recovery. I gave up showing partly for these reasons. I found my birds in dangerous draughts, and they died of lung disease. I sent food with others, in order that they might be correctly fed, and different food, which gave them fits and killed them, was substituted; but I think what annoyed me most was to send a genuine and perfect *pair* of birds for competition, and see them quite ignored, while two cocks of the same species (in no better plumage) carried off the first prize. If you decide to show, you must make up your minds to all these drawbacks. All carriers and railway officials are not careful, all show attendants do not care to be bothered with special foods, and all judges of birds are not up to their work, though some are. One thing, perhaps, may be

worthy of the breeder's consideration in relation to bird shows: they are an excellent medium for disposing of surplus stock at a good profit. A bird which wins at a show is likely to realise any price, within reason, at which it may have been entered, and instances have occurred in which the most absurd prices have been paid for quite common birds.

I once knew a gentleman who had a pet bright yellow Norwich Canary, for which he had originally paid 15s. A friend advised him to show his bird, but he objected on the ground that it might be purchased, and he would greatly miss it. "Put on a prohibitive price," said his friend. So he entered it in the schedule at £15, and a rich old lady snapped it up at that price. I never had that luck, but it might come to anyone. But, though it may be useful to get rid of surplus stock at a show, it is rarely worth the aviculturist's while, unless he is exclusively an exhibitor, to purchase there, though a useful bird may sometimes be picked up at a reasonable price.

There is a third type of aviculturist, with whom I have more sympathy than either of the preceding, namely, the man who keeps birds, not merely to occupy his time and delight his senses, not merely for the sake of acquiring prize-cards, medals, and cups, but with a view to enlarging his own mind and those of others, by studying and afterwards putting on record the results of his observations upon the habits and peculiarities of his pets. This is the work of which I have given an outline in Chapter VII.

To learn anything by the study of living birds, that is to say, to learn it accurately, you must sit down and watch carefully for hours together—nay, I will go further, and say that, if you are watching the manner in which change of plumage is effected, you must be constantly on the alert, day after day, for weeks together. It was only after such careful study, confirmed by the examination of cock-birds which died during the assumption of the courting plumage, that I was convinced that the change of the Weavers from the winter to the summer dress was chiefly effected by growth of colour in the feathers themselves; only the feathers of the crown, neck, rump, and flanks being moulted, to make way for the long plumes characteristic of the wedding dress. In the Indigo Finch I much doubt whether any of the winter feathers are moulted, as I still have a dead bird, and have given away others, showing most of the feathers in a transition stage between the brown and blue plumage. One of the most interesting occupations of the bird-keeper is watching the manner in which birds build. Most nests are formed in a very simple method; that is to say, most nests of the cup shape. The chief art, after collecting a mass of material, consists in tucking in all the ends which appear inside. The outside walls are partly strengthened by spiders' web or wool, a few of the loose ends of twig or grass being bent over and pushed into the wall, so that they act as binders. The inside cup is formed mechanically: a mass of soft material (mud or cow dung in the

case of the Song Thrush) is packed into the middle, and moulded by the bird sitting down and alternately scratching with its feet and twisting round. To complete the lining a few horse-hairs are often added by many of the open-nest builders.

The most ingenious nests to watch the construction of are those of the Weavers, and one of the most instructive is that formed by the Baya and allied Indian species. Although it is the general rule for cock Weavers to build the nest, the Baya's nest can only be completed by the joint labours of the cock and hen; therefore, if cocks alone are kept in an aviary, plenty of nests will be formed, but none of them with the finishing cup for the reception of the eggs. This fact explains why unpaired cocks, when at liberty, build unfinished nests, wrongly supposed by travellers to be purposely so built as night shelters. A similar fiction has been promulgated about incomplete Wren's nests in Europe, the latter being due to the nervousness of the builder, which deserts one nest and commences another owing to a real or fancied interruption in its labours. On one occasion I was watching a Wren building, and, although I stood at a distance of from thirty to forty feet from the little architect, she no sooner caught sight of me than she flew away, and never completed her work; yet, in the absence of the parents, I have removed eggs from a Wren's nest with a small metal spoon and substituted small white rounded pebbles without desertion resulting. Had I used my fingers the nest would certainly have been deserted.

CHAPTER X.

ON TAMING BIRDS.

I AM often asked how to tame wild birds. Is it not a disgrace to civilised man that he should be so out of harmony with Nature that it is necessary for him to conciliate his feathered fellow-creatures? In those parts of the earth where man has not made himself objectionable birds regard him as a friend. Let me quote, in proof of this statement, from an article by my friend, Professor W. E. D. Scott, of Princeton University, U.S.A. In *The Outlook* for July, 1902, Mr. Scott says:—"In places where birds have not been molested by man, as in deserts, on the islands of the Pacific, and in parts of Arizona where I have been, birds have no fear. In the latter place I remember going to a bird's nest, and, wishing to see the eggs, I had to gently lift the bird off, found out what I wished, and put her back. She did not appear to be disturbed or alarmed by this. Nor do I think that there was anything peculiar and special in my attitude; this bird had never been



MASTER VINE AND HIS TAME THRUSH.

disturbed by man, and felt no fear; there was nothing occult about it, nor was it because of any peculiar influence which I possessed or exercised. I observed a few simple rules—that is, I did not make a noise or move rapidly, but that is all."

But that *all* is a great deal to birds, and I should not expect a noisy or flighty person ever to be able to speak of his birds as tame; they would always have a nervous dread of him. When once thoroughly tamed a bird will put up with a good deal from the man whom he has learned to confide in, but he will be easily alarmed, before that time, if any liberties are taken with him. My crested Mynah, an exceptionally tame bird, sometimes annoys me by imitating the screech of a Parrot. When it does this I slap with my open hand against its cage and tell it to "Shut up!" and this does not render it a bit less confiding; but it would not do to play such tricks with a wild bird.

Visitors sometimes express wonder at the tameness of some of my birds, and imagine that I must have some special gift; but Mr. Scott's explanation is the correct one—be gentle and quiet in your movements; let your birds see that you love them, feed them yourself, give them dainties occasionally, and they will soon learn to trust you.

Some years ago, perhaps fifteen or sixteen, when I was catching a good many Thrushes and Blackbirds, and wished to get them tame quickly, I had about eight cages specially made for the purpose. They were box-cages of a kind—18 in. from front to back, 18 in. high, 12 in. wide, with willow bars in front; a perch was placed near the top towards the back and a second perch near the bottom

towards the front; two large tins for food and water slid in from the front, and the sand tray slid in below them; the door was at the side. In these cages I got my birds quite tame in three or four days—so that they would take mealworms from my fingers.

That, however, was during a severe winter, when birds were dying wholesale out of doors from starvation; therefore, it is possible that equally good results might not always be obtained in the same way; nevertheless, the plan of my cages, which compelled their inmates to face their master when he put their food and water in, and yet allowed them a back perch to retire to when they felt nervous, was certainly the most suitable to convince them that no evil was intended them. The willow bars prevented the captives cutting their faces when first imprisoned, which is an important matter if you wish a bird to become tame.

A bird-catcher once informed me that the only way to tame Finches was to put them into those horrible little cages measuring about 3 in. by 5 in. floor space, in which some unhappy Linnets are incarcerated for life. He said you must carry this cage, with its inmate, about with you every day for at least an hour, the cage being tucked under your arm, and you must occasionally swing it about. (I imagine the idea was to try and persuade the poor thing to think it was flying). That bird-catcher showed me a Goldfinch



MRS. OGLE AND HER HERON.

which had thus been treated, and which he poked at with his finger to prove to me what "a wunnerful tame bird" it was. The unhappy victim winced and shrunk, but could not retire. It made me feel sick to look at it; so I bought the "wunnerful tame bird" and put it into a large flight-cage. It was the wildest and most nervous Goldfinch I ever possessed. If you want a bird to get tame quickly, as much as possible avoid bringing ladies or children to look at it—that is to say, ladies in outdoor attire, with picture hats, feathers, and parasols, or children, if in large hats or of an excitable temperament. Most birds caught in civilised countries have an instinctive dread of children. Possibly their ancestors for many



MISS BARNES AND HER GREAT SPOTTED WOODPECKER.

generations have been chased and pelted by children, so that the fear of them has been handed down with other antipathies, such as that of the cat. Lady visitors, apart from their dress, often alarm birds by suddenly calling out and pointing, either with finger or parasol, at a bird which takes their fancy; and the unfortunate object of their admiration thinks it is going to be shot, or in some way annihilated, and rattles about in extreme terror.

For these reasons, if you are trying to win the confidence of a wild-caught bird, it is better not to show it to more than one visitor at a time, and then only if you know you can trust that one not to get excited and assume alarming attitudes.

A German once informed me that it was quite easy to tame birds directly they were caught. "Take dem in ze hand, so; plunge zem suddenly in a pan of vorter, and zay are tame to once; zen zay vill sit on your fing-er and dry zere fezzars; zay are tame; zay

vill not be again vild." Of course, I was delighted with the information, it was so entirely satisfactory; but, strangely enough, I never put it to the test. The same man told me how to catch a bird easily in a bird-room, by drenching it with a squirt, so that it could not fly. He seemed to believe in the cold-water cure for everything, and ought to have opened a hydropathic establishment.

With quietness, gentleness, constant attention to a bird's needs, it is tolerably certain to become fairly tame after its first moult in captivity, if not sooner; but some species are much more susceptible to kindness than others; so that a Siskin, or almost any of the soft-bills, will become quite tame and friendly far sooner than a Chaffinch, Brambling, Linnet, or than many of the foreign Doves. I have had Siskins which flew on to my hand to feed three days after I purchased them, and I have had a Chaffinch which never really became quite steady after years in captivity. Of course, the easiest way to acquire perfectly companionable birds is to hand-rear them; but, even then, you must continue to make pets of them after they have become able to attend to their own wants; and you must on no account turn them into an aviary with a crowd of other birds (unless they chance to be Siskins or Tits), or they will probably become more wild than trapped birds; this is generally the case with Linnets, as I know from sad experience.

The reason why many bird-keepers fail to tame their birds is that they are in too great a hurry: they expect that, in every case, attention for two or three days will convince their pupil that they have only its welfare at heart. When, after a week, the bird still hustles about at their approach, they snatch up the cage, and perhaps shake it in their impatience, thus undoing the little good which has been done, and rendering the captive more nervous than ever.

Patience and perseverance are necessary in this, as in all things. As Mr. Scott says, "All that birds ask for is the right kind of treatment, and they will respond." If you have a nervous bird to deal with, you must be all the more careful not to alarm it by rapid movements, by sudden startling sounds, by jolting its cage; you must from time to time (but not too frequently) offer it some tempting morsel; and if, as is probable, the bird is afraid to take it from your fingers, drop it into his cage where he can see it; then retire from the cage to give him an opportunity of eating it. In time he will get more accustomed to you, will edge up to the side and snatch it from you, and in the end will hop up confidently and take it quietly. "Rome was not built in a day," and education of all kinds is like that—you cannot acquire it without concentrating your mind upon it.

Of all dainties for ingratiating yourself with soft-billed birds spiders and mealworms are the most powerful; spiders, however, are by far the more attractive to them, and certainly they are the more innocent. It is possible to give too many mealworms to some birds, but I believe they might eat spiders by the dozen without any overheating of the blood; indeed I believe they are slightly purgative in their action upon the stomachs of birds.



MR. HOWARD, HIS SKYLARK AND COLLIE.

CHAPTER XI.

ON BREEDING HYBRIDS.

So far I have said nothing about Mule-breeding—one of the most fascinating and disappointing amusements in which the aviculturist can indulge. It is interesting, because there is always the possibility of a good result, always the chance of producing something interesting, if not actually new; it is disappointing, because the failures are the rule, the successes the exception.

The easiest Mules to produce are those in which a hen Canary is selected as the mother and a British Finch, not very distantly related to it, as the father. Thus, to breed some sort of Goldfinch or Linnet Canary Mules is almost as easy as breeding pure Canaries. I succeeded in producing both at my first attempt; but to breed Mules of these two types which will win on the show bench is quite another matter.*

When less closely-related Finches are paired with a hen Canary, the difficulty in producing Mules is generally increased; yet, strangely enough, that between the Greenfinch and Canary is an exception. This, and the fact that the Japanese Greenfinch crosses freely with the European Goldfinch, makes one wonder whether the sub-family distinction of the Grosbeaks and typical Finches is not purely an artificial one, and whether the Greenfinches, in spite of their huge beaks, are not related to the Goldfinches.

The most typical Finches—that is to say, the Chaffinches and Brambling—being far more insectivorous than the Serin group (to which the Canary belongs), are naturally very difficult birds to produce Mules from when paired with the latter. Nearly every year now somebody writes to say that he has successfully produced the coveted hybrid; yet whenever an expert breeder of Mules examines the latter, it is invariably pronounced a chimera—either a Greenfinch-Canary, a pied Canary, or something equally common.

When a Chaffinch takes a fancy to a hen Canary he is just as attentive to her as though he were her natural mate, feeding her frequently from the crop exactly as a cock Canary would do; but, in a flight-cage, he eats her eggs as she lays them, so that it is necessary to remove them. Why the eggs should so often be clear I do not understand, for the Chaffinch pairs readily enough with a Canary, but it is certain that they are.

There appears to be much the same difficulty when a Bunting—as, for instance, our Yellowhammer—is paired with a Canary. I tried crossing the Indigo Bunting and Canary, both in flight-cage

* Those who desire to succeed in this had better consult Mr. Vale's excellent little book, procurable from this office for 1s 1d.



DR. BUTLER AND HIS GREY PARROT.

and aviary. In the former case, the Indigo Bunting not only nearly worried the Canary to death by its frequent attentions, but interfered with both nest and eggs. In the latter case, he ignored her altogether. But, although I failed to obtain this hybrid, Mr. August Wiener, in "Cassell's Cage-birds," states that, "In the very rare cases where young cross-breeds resulted their colours were disappointing," and Dr. Russ, in his "Handbuch für Vogelliebhaber" ("Handbook for Aviculturists"), says, "I know that in one instance the hen laid

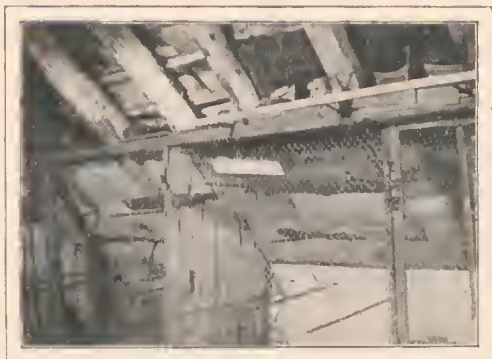


MR. WM. RAMSAY.
(Thirty years a hybrid breeder).

fertilised eggs." My friend Professor Scott, of Princeton University, assured me that he had bred this hybrid without difficulty (see *F. W.* for 23rd March, 1900), and that the Mules were green birds, not unlike a hen Indigo Finch, but rather smaller, and with more yellow in their plumage.

It used to be asserted that it was impossible to obtain a hybrid between the Saffron Finch and Canary. This belief was based partly upon the fact that the species of *Sycaelis* (Saffron Finches of various kinds) lay eggs which resemble those of the Tree Sparrow; in the second place, because Saffron Finches were walking birds and Canaries hopping birds; in the third place, because Saffron Finches make their nests in covered places, but wild Canaries in the open;

lastly (and this was considered the most important reason), because it was asserted that, like the Chaffinch and Sparrow, the Saffron Finch never fed its young from the crop.



MR. RAMSAY'S AVIARY.
(A typical "attic" birdroom).

All the above objections have either been proved frivolous, or have been exploded. The colouring of eggs is extremely variable, and different conditions may effect a marvellous change in a single generation, as proved in the case of a House Sparrow's nest which I obtained in Kent, built in a hawthorn, resembling the nest of a Duck rather than a Sparrow, containing four eggs nearly as large as those of a Skylark, two of which were coloured like dark eggs of the Tree Sparrow, and two much more like eggs of the Corn Bunting. Some of the Buntings are walking birds, whereas others hop. I have known Canaries to build in covered boxes, and I fancy every other breeder of Canaries has had the same experience. Lastly, I have seen both Chaffinches and Sparrows feeding from the crop, and I have shown that Saffron Finches (of which I have bred dozens) feed their young in no other way.

It is, however, a fact that hybrids have never been produced, so far as I am aware, between a cock Saffron Finch and hen Canary, although I, and many others, have repeatedly tried to obtain this cross. On the other hand, in 1898 a cock Canary in one of my aviaries paired with a hen Saffron Finch, which brought up three Mules, of which only one lived through its first moult, and is still living; and the Hon. Mary C. Hawke, in a letter published in the *Avicultural Magazine* for August last, states that she saw a Canary pairing to a Saffron Finch, and thinks one of her five eggs is good, so has put it under a Canary.

It has been stated, and I see no reason why it should be impossible, that hybrids have been bred between the Bengalese (which is one of the Weaving Finches) and the Canary, which is a

cup-builder; but no hybrids between *Ploceid* and *Fringillid* Finches have ever been exhibited at any of our shows.

My friend Professor Scott told me of the best way in which to produce hybrids freely between Canaries and other birds, a plan which would doubtless be equally useful if applied to different species of Finches apart from Canaries. A room is set apart for the breeding of Mules, a good many hen Canaries are turned loose therein, together with many cock Finches, each belonging to a different species; plenty of nesting receptacles are fixed up, and abundance of building material supplied. It follows, as a matter of course, that every bird reared in that room must necessarily be a Mule.

When I hear of Mules produced between a Canary and a Robin, Skylark, or any other insectivorous bird, I know that I am listening to a fairy tale. A young Canary is fed by its mother upon half-digested food consisting of biscuit or bread, yolk of egg, and water-cress or chickweed, together with seed; a young Robin is fed upon broken-up small worms, but chiefly hunting-spiders, small caterpillars, and the like, moistened but not half-digested; a young Skylark is fed upon small insects with their larvæ, and perhaps grass seeds, undigested. It therefore stands to reason that, if it were possible for an insectivorous bird to fertilise the eggs of a Canary, so that they hatched, the Finch would be unsuccessful in rearing the Mules. To attempt to produce such hybrids, therefore, is to waste time which might be more profitably employed in breeding possible Mules.

The crosses which have been produced between one wild Finch and another interest me even more than those produced with the domesticated Canary; but when regularly bred year after year they



MR. MATHER'S AVIARY.

become monotonous and wearisome. Of all the hybrids between British birds the Goldfinch-Bullfinch is the most beautiful, but we know it thoroughly now; it is familiar to all who attend bird shows,

and consequently has ceased to astonish anybody, or even to interest those who do not confine themselves to Mule-breeding. The Redpoll-Bullfinch is far more interesting, because much rarer, and, I should think, much more difficult to produce.

What would be interesting at our shows would be a class of hybrids between the various species of Weaving Finches, many of which have been bred, but not exhibited. The pretty little Bichenos Zebra Finch hybrids exhibited the last year or two were, I believe, far more attractive to the general public than any of the hackneyed Canary or British Mules with which all shows abound, and is (as I know from four or five years' unfruitful effort) as difficult to produce as any cross hitherto produced. There is no doubt that enough of these Mules between Ploceid Finches are produced to form a class, if the breeders were encouraged to exhibit them; but, as a rule, the judge of hybrids at our shows is a man interested only in the Canary or British products, so that the foreigners stand no chance whatever in competition. All foreign Mules should, therefore, be judged by a student of foreign birds, even when one parent is a canary, as only thus can justice be done.

Hybridising with foreign birds is by no means easy; when a result is attained it is generally by the selection of the cock-bird himself in an open aviary, rarely by confining the sexes of different species in a flight together. I have tried the latter plan repeatedly—Gouldian Finch and Zebra Finch, Gouldian Finch and Mannikin, Gouldian and Parson Finches, Waxbills and Zebra Finches, Zebra Finch and Bichenos, Bichenos and Zebra Finch, Waxbills of different species, and so on. As a rule the hens die from egg-binding, or lay eggs and do not incubate them. Success is very rare, either in the case of Finches or Doves. I believe rather better results have been obtained with Parrots.

CHAPTER XII.

ON TEACHING BIRDS TO TALK, ETC.

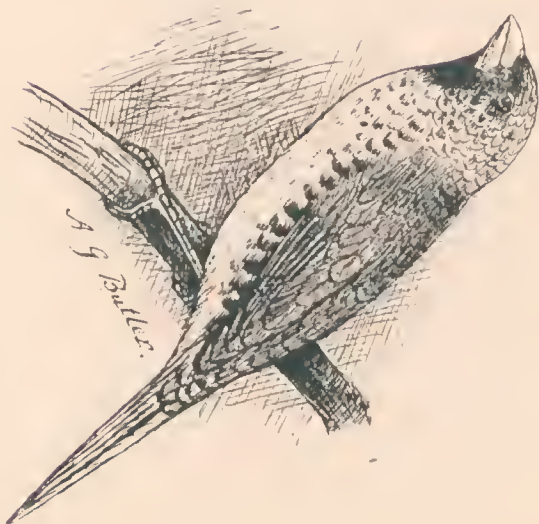
I AM frequently asked how to teach Parrots and other birds to talk; how to teach Bullfinches, Starlings, etc., to whistle tunes; also if it is necessary to split the tongue, or nick the frenum under the tongue, to enable a bird to talk.

To maim a bird's tongue would help it to talk just about as much as cutting your leg off would help you to shoot straight. The tongue of a bird is not used for speaking as our tongue is; but all the vocal sounds proceed from the throat, where the vocal organ is situated.

Before teaching a bird, it should be fairly tame and accustomed



BICHENO + ZEBRA-FINCH HYBRID.



CHESTNUT-BREAST + SILVER-BILL HYBRID.

to its owner; it should also be in good general health, but by no means with a tendency to fat. The lessons should be given preferably in private, and either early in the morning or at twilight, when the pupil is more likely, than at other times, to be at leisure to pay attention to you. You should not begin with long sentences; but, on the other hand, you need not confine yourself to monosyllables, as Dr. Russ advises. Very good sentences to commence with are—"Good morning!" or "Good night!" "How are you?" "Are you pretty well?" "Hullo, old chap!" and so on. One sentence must be taught at a time, and until that is mastered no other should be repeated to the bird.

A clever Parrot will often pick up a sentence very quickly, and will astonish you now and again by repeating some sentence which it has only once heard; but when it does this it rarely adopts that



MY TALKING MYNAH—"JOEY."

sentence into its vocabulary, and the chances are that you will not hear it again.

It is most uncanny sometimes to lie back in a cane chair near a Parrot, and hear it muttering to itself; sometimes it would seem as if the bird had committed to memory quite a string of connected remarks, and the result is a weird self-communion, such as one sometimes hears as one passes human beings in their dotage. I have heard my Parrot muttering somewhat as follows:—"Well, I should say so; I don't think there can be any doubt about it; it's very foolish; I always have thought so," and so on, sometimes for several minutes, and then its musings will be interrupted by one of its favourite sentences, such as "How's your grandmother?"

I believe it is necessary to give a bird instruction when it is young, if you wish it to be a good talker. An old Parrot seems to add very few words or sentences to its list.

If you notice that a bird ceases to repeat sentences which it has learned, you must now and again prompt it, or they may be entirely forgotten; perhaps this is not an unmixed evil, inasmuch as, when one knows this, one need never despair of reclaiming a profane

Parrot, though, on account of the notice generally taken of profanity from a Parrot, this is doubtless a more difficult matter than if you desire it to forget more innocent observations.

Dr. Russ says that if you wish to teach a bird to talk you must keep it away from other birds. I would modify this statement and say, if in addition to what you desire to teach, you do not wish your bird to pick up the cries and sayings of others, you must keep it by itself; but I do not object to my Parrot acquiring other accomplishments, so have never kept it separate. The result is that it copies accurately all the notes of my Blue-bearded Jay, and repeats all the acquired notes of my English Jay.

To teach a Jay to talk is a tedious matter; it will imitate accurately the cries of various animals, the sound of a trumpet,



MY GREY PARROT—"BOBBY."

jew's-harp, or the splashing of water; it even acquires, without difficulty, a vague caricature of a cackling laugh, but it took me a whole year to teach my English Jay to repeat the simple remark, "Hullo, Jimmy!" and it has never learnt a second observation. In this respect I think the Raven is the only British Crow which is really talented.

I have often heard of, but never heard, a talking Starling, though at one time I reared Starlings from the nest and spent much time in trying to educate them. At the same time, I do not for a moment doubt that the English bird does sometimes make a good talker; it is only what one would expect from what one knows of the remarkable talent of some of the Mynahs; but I should imagine that teaching a Starling would be almost as difficult as teaching a Roseate Cockatoo, but not quite. I doubt whether anyone but a solitary shepherd in the isolation of his Australian cabin would have patience enough to educate that screeching bird; those that

talk are already educated when imported into this country, unless I am much mistaken.*

Among Parrots only the most talented can be taught to repeat or whistle songs and tunes. I have spent months in trying to teach my bird to whistle the tune of "The Cure," but it never succeeded in getting even one phrase perfect; yet it can whistle the musical scale, and often amuses itself by extemporising in a truly marvellous manner. On the other hand, as I have stated elsewhere, the late Mr. J. Abrahams taught a blue-fronted Amazon to sing the whole of the words of two songs, and whistle a third. I heard the bird myself one day when I called upon Mr. Abrahams.

Dr. Russ says that the same process must be gone through in teaching a bird to whistle a tune as in teaching it to talk, but Mr. Abrahams told me that this was a great mistake; he taught his Amazon one song at a time, it is true, but he repeated the whole song through at intervals day after day until the bird had it perfect. He told me that at first the chaotic jumble of words and notes which the Parrot repeated seemed hopeless, but gradually they seemed to sort themselves until they were all in order.

When you come to think of it, there is no reason why a Parrot should be less capable of learning a tune or a song with words than a Bullfinch or a Canary; yet, if Dr. Russ' plan were generally applied, these birds would have to be taught their songs note by note. I am afraid the good doctor was so busy studying the more scientific details of aviculture, that he never had leisure to put his views as to the correct method of instructing talking and whistling birds to a practical test.

Birds are very like children, and must be taught much in the same way. A child does not learn a song one word at a time, but one verse at a time; in this respect Mr. Abrahams' Parrot was perhaps more clever, in one respect, than a child, for he acquired a whole song straight away; yet I do not doubt that he was longer over his lesson than any sharp child would be.

In teaching a Bullfinch to pipe, you must have a nestling. I am often asked by owners of adult Bullfinches how they can be trained to whistle a tune. They cannot. The only tune a trapped Bullfinch will ever learn is the quaint little jew's-harp performance taught it by its father.

Take your Bullfinches when about eight days old, and bring them up by hand, feeding them upon sweet biscuit ground to powder in a coffee-mill, preserved yolk of egg, and selected ants' eggs (if you can get living ants' eggs it will be better); to these ingredients you may add blight (green fly) from roses. Buy a bird-organ, and after feeding the young birds, play always the same tune to them upon the organ. When the young cocks begin to sing, instead of their wild song they will have acquired the tune played to them.

* Since the publication of this opinion in *The Feathered World*, a gentleman has written to say that he and his wife have been perfectly successful in teaching a Roseate Cockatoo to talk; such success, however, must be very unusual.

When one tune has been learned correctly, you may proceed to a second; but only exceptionally talented birds are likely to learn to sing more than one tune through.

To teach most hand-reared birds to sing their wild song correctly, it is necessary (as I have often stated) to let them hear wild birds, or birds caught wild, singing the true notes. Few birds seem to sing their wild song instinctively, and those that do are very liable to add the notes of other birds belonging to their owner.

It is well known that many insectivorous birds, such as the various Mocking-birds, the Red-backed Shrike, the Marsh and Sedge-Warblers, with numerous others, are excellent mimickers in their wild state. I have had a wild Song Thrush in my garden during the past summer, which sang the songs of several other common wild birds so perfectly, that I was completely deceived until I watched and listened carefully to him one day, and discovered greatly to my astonishment, that he was the performer.

In order to teach these birds to sing well in captivity, it is advisable to acquire them as young as possible, and to associate them only with the best songsters. A Mocking-bird is always capable of adding to his repertory; but, unfortunately, he does not forget the harsh notes which he may chance to pick up.

To give pleasing variety to the song of the Mocking-bird, you need not introduce a Song Thrush as one of its instructors. I never heard a Mocking-bird which did not begin its performance with the song of that bird; I believe it is the original wild utterance of this and many other Thrushes; but the Nightingale, Blackcap, Woodlark, Skylark, Persian Bulbul, Pekin Nightingale, Shama, Linnet, Indigo Bunting, and many others would serve to produce a grand combination in the song of that talented mimic.

CHAPTER XIII.

ON CATCHING BIRDS.

LOVERS of British birds who object to purchase the miserable and frequently diseased captives confined in tiny cages, and exposed in the windows of many a small bird shop in the slums of our great cities, but who, nevertheless, earnestly desire to own, and study the habits and songs of, our native birds; are naturally tempted to try various methods of capturing our feathered friends, and turning them out, while still vigorous and healthy, into their aviaries.

By many who think it perfectly right and kind to keep a Canary or a Parrot in close captivity, it is considered the height of cruelty

to entrap and hold, even in a state of semi-freedom, the familiar songsters of our gardens, fields, and woods.

The argument used, in defence of this illogical conclusion, is, that one can hear and watch British birds by taking a short trip into the country, whereas one must go abroad in order to study foreigners. Is this true? Can we always hear the songs which give us pleasure by leaving the town behind us? Can we at any season be sure of finding what we seek? We know such is far from being the case.

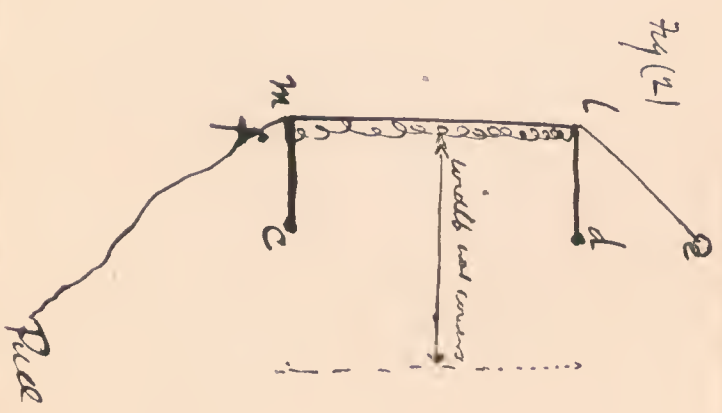
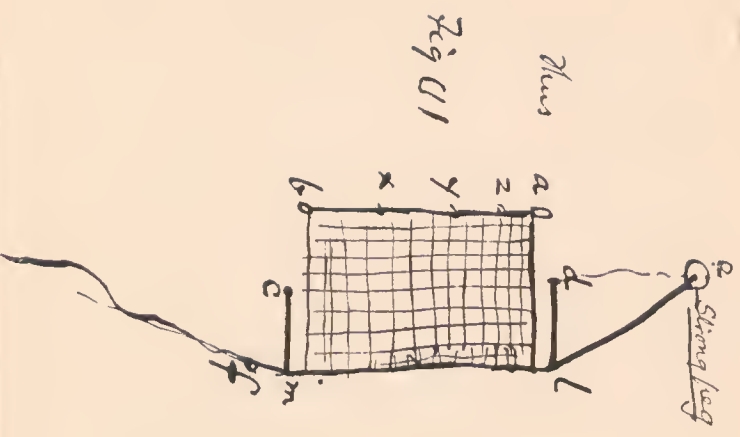
As one cannot ensure hearing a Nightingale during a country ramble (I did not hear one for nearly twenty years of my life), so, in like manner, it is certain that, by visiting any of the large Zoological Gardens one may see, and to a certain extent study, many foreign species; this argument, therefore, falls to pieces as soon as it is examined.

I admit that I do not approve of capturing birds at all seasons; it is abominable to trap or net them in the breeding season. Personally, I would not capture our British songsters excepting in the severest winter weather; then I consider it not only by no means cruel to entrap them, but, on the contrary, most merciful. It is some years now (as I write these notes) since we have had a really hard winter, but I well remember at that date, how everybody was shocked by the wholesale mortality amongst birds, which visitors to the country observed throughout the kingdom.

That winter one only had to put out a trap with a little food in it, to have it surrounded by birds of various kinds, from a Rook to a Tomtit. I caught many birds merely to save their lives, feeding them regularly until the severe frosts were over, and then turning them loose in plump condition, ready to pair up and perpetuate their kind. If, amongst these temporary lodgers, there were two or three which I elected to make permanent pets of, the latter at anyrate were provided either with the partial liberty of a good-sized aviary or with a spacious cage. They were also safe from all fear of prowling foes, whilst good food and constant attention was assured to them for life. If they remembered, I am sure they seldom, if ever, regretted their former greater liberty.

Among the many means contrived by man for catching birds the most unkind (in my opinion) is the use of linned twigs. Bird-lime is of two kinds: that made from holly-bark, which is by far the more powerful, and which, in the hands of an experienced catcher, has, undoubtedly, proved very profitable; that made by boiling down linseed oil into about the consistency of thick treacle, this being the stuff usually sold to the amateur, and rarely (if ever) resulting in anything beyond making him, and possibly a few venturesome sparrows in a sticky mess. In former days I regret to have to confess that I tried both, with no benefit to myself, and perhaps with some little discomfort to House-sparrows and Starlings.

Birds caught with linned twigs are always more or less disfigured for weeks; the feathers are stuck together and smeared



with the glutinous mess. It is difficult to remove all traces of the lime, even with turpentine, and in the process of cleaning, the feathers are almost certain to get either pulled out or broken. All this is most unsatisfactory, and distressing to anyone who loves birds. I shall not, therefore, encourage this method of adding to one's stock by explaining the various ways in which bird-lime is most effectually used. Savages often make use of some form of native bird-lime in the capture of our foreign favourites, but Britons should seek to be above savagery.

Of the various nets used by catchers, the old-fashioned elap-nets are very serviceable; and in 1902 a great improvement upon the ancient type was described and illustrated in the pages of *The Feathered World*, and reproduced on page 71. This net not only covers an equal area of ground with that of the older and more unwieldy pair, but is more easily pulled over; one side being pegged down instead of being attached at each end to a heavy movable pole.

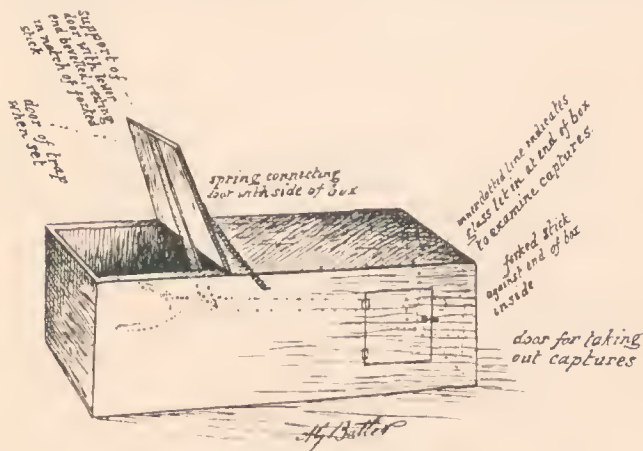
To show how even an inexperienced catcher, with no brace-bird (but I think only a hen Chaffinch in a cage as a decoy), may yet be fairly successful with the nets, I may mention that during the winter previously referred to, my man took out a pair of old nets into a field in this neighbourhood and brought me home thirteen Skylarks, one or two Chaffinches, one or two Blackbirds, and a Brambling. I kept two of the Skylarks, and they made splendid songsters; one of them was an exceptionally fine bird, and became very tame. Bat-fowling is a common method of netting birds in rural districts. It is a wholesale but rather cruel practice, especially as the captured birds are almost invariably killed for the pot or thrown away. I have never witnessed this, but am informed that it requires several operators. A thick hedge is chosen at night, and a man holding the net, which is suspended between two long poles, passes down one side of the hedge, whilst his companions thrash the other side with sticks. As the wretched birds, disturbed from their slumbers, fly out towards the net, the two poles are brought together, and the whole flock enveloped in it. Even if saved alive, I should imagine that many of the captives would be likely to die from the sudden terror to which they had been exposed.

The common sixpenny or shilling net-trap is a clever little contrivance, worked with a spring wire frame, to which the net is fastened. At one end of the platform of this trap is a box in which, when ready for catching, the net is folded up and concealed by a loose lid, in the front of which is fixed a short straight wire pin; a small platform* and perch are supported upon a sort of axle nearer to the middle of the trap, the perch having a pin fastened in the back, which, when carefully adjusted over the pin in the lid, keeps the latter in position. A mealworm is usually fastened to the

* A peg under the back of this prevents it from turning over, if I remember rightly.

platform, and as a bird alights upon the perch to seize the worm, the slight jar releases the catch and the net flies over him. An old bird-catcher informed me that he caught all his Nightingales with this form of trap, which he could carry with ease buttoned under his coat.

The well-known shilling cage-trap is an excellent one for Finches, the only drawback being that it is too small. I had a special one made for my own use, with two traps above and one large cage for the decoy-bird below. There is, however, a serious



COMMON BOX-TRAP WHEN OPEN.

drawback to the double trap, therefore I do not recommend it—if one bird approaches each trap simultaneously and both do not jump in together, the fall of one trap sometimes jars down the second, and the dilatory bird may get injured. The trap itself works with a small hinged platform notched for the reception of a bevelled rod attached under and extending backwards beyond the lid, which is fastened at one side to the outside of the trap by a strong but elastic spring. To set the trap the lid is forced open; and the rod fastened under it, being thus brought forward, is slipped into the notch behind the wooden platform. On the latter seeds are scattered, and as the bird jumps from the front of the trap to the platform to feed, he releases the catch and is captured. I had a door made at the back of each trap in my combination, so that I could let the bird slip out into a large cage or aviary without handling it.

The German cage-trap is fairly effective and useful for catching the larger song-birds; but it is unwieldy and heavy as well as elaborate and expensive. I had one made for me which cost me a sovereign, and eventually I sold it, for, I think, half that price, perhaps less, but I do not remember exactly. I do not think it is

so satisfactory as a far more simple and very easily constructed Thrush trap, which I shall now describe.

Get a Hudson's soap box from a grocer, and see that you get the lid, this will perhaps cost you 2d. Saw the outer two-fifths of the lid across, fasten the remainder down with French nails, hinge the loose portion to that which you have fastened (this can easily be done by tacking across two strips of soft leather) so that the short lid opens and falls back to its place with ease. To the outside of the lid fasten one end of a penny wire spring, stretch this just slightly, so as to hold the lid firmly down carrying it obliquely



CARAVAN TRAP.

backwards and fastening the hinder end through a small hole pierced in the side of the box.

I ought to have mentioned one important thing which I had almost overlooked,—a narrow piece of wood bevelled off at the lower end and screwed under the centre of the lid, with the bevelled lower end extending some two or three inches backward beyond the said lid. Now get a stont forked twig, and cut a triangular notch in the upper side behind the fork, rest the back end of your twig against the back of the box inside, lift your lid and slip the bevelled end of your lid-support into the notch, and your trap is set. Either sunk level with the earth or placed on a step, and a few crumbs scattered inside and round the edge, this trap is ready, and can be watched from a distance or even left for a time.

I improved upon the above ingenious contrivance by letting a piece of glass into the end in order to examine my captives, and a small door in the side to take them out by.

Another clever trap was made for me by a bird-catcher for a shilling, this he called the "Caravan Trap." It is made by hammering a sixpenny iron hoop into the outline of a caravan hood, across this two arched wires are fastened, and a piece of net is stretched over the frame thus formed. A flexible apple-wand is now bent into a bow, so as to come just within the hoop of iron, and is attached with strong twine at each end to the corners bounding the flattened

back of the hood. Resting the latter on the earth, you overpin it with two or three long stout wire staples, then, just in front of the arch, at its centre, drive into the earth a strong forked crutch. Cut a supple apple-wand, stick the upper end under the front of the iron hoop and through the net, bring it back over the crutch, then forwards to behind the inner hoop of apple-twigg, in such a way that the iron hoop is held quite a foot, and the apple-hoop about an inch and a half above the ground. Now scatter crumbs underneath and await results; if there are Starlings about you will be astonished.

CHAPTER XIV.

ON BIRDS'-NESTING.

THESE hints would not be complete without a chapter upon birds'-nesting, inasmuch as it is the duty, and should be the desire of every student of British cage-birds to know the life-history of his pets. As regards foreign birds, he can to some extent take up this branch of the subject, by watching the inhabitants of his aviaries; but to do this with all the British cage-birds would necessitate the construction of many and large aviaries, enclosing shrubs and even good-sized trees.

Unfortunately for the birds'-nester of the present day, the law regards him as a mild sort of criminal if he wanders over the country taking nests or eggs freely wherever he finds them, so that, unless he comes upon them on his own land, or (by permission) on that of a friend, he is liable to be fined and deprived of his treasures. In my birds'-nesting days this was not the case, although threatenings of the coming trouble were in the air.

It was in 1871, when on an expedition after butterflies and moths (which were to my disgust extremely few that year), that the idea of collecting birds' eggs first entered my mind, and was put in practice. Although quite a novice at the art, I was fairly successful; indeed, so much so, that I was encouraged to continue. I soon discovered that such books as Hewitson's, though useful to the experienced collector, were of little value to enable one to identify the numberless varieties in the form, colouring, and markings, of some of even the most familiar of our British birds' eggs. This fact tempted me to set to work upon a book illustrating all the more striking forms which came to my notice, and thus I started upon my first ornithological book—"A Handbook of British Oölogy."

To those who have never tried, the discovery of birds' nests seems a very simple matter; they imagine because they see many old nests in the trees and shrubs in the winter after the fall of the leaf, that therefore it must be quite easy to find these same nests in the summer. It would doubtless surprise them to be told, that even so

conspicuous a nest as that of our Blackbird, is frequently quite invisible to the casual observer; but this I have repeatedly proved to be the case. In many instances the experienced birds'-nester may point out a nest even to an otherwise keen-eyed naturalist, or to a man who has spent his whole life in the open air, and he will not only fail to see it, but will positively assert that it is only a bunch of leaves.



CURIOUS SITE FOR A ROBIN'S NEST.

Photographed by Mr. A. Wright, Oundle.

In proof of the last statement, I may mention that on 7th May, 1884, when walking through a Kentish wood with a young farmer, I pointed out a Wren's nest in the middle of a mass of dead leaves which had lodged in a mass of brambles; he was positively rude in his contempt of my supposed over-sanguine imagination; he did not recognise, as I did, the artistic formation of the entrance hole; and, in spite of himself, was afterwards startled into an expression of wonder that I should recognise a nest covered with leaves and apparently forming part of the mass, whereas, he who had lived in the country from his infancy, had passed it by without even a suspicion; that nest is still in my collection.



CURIOUS SITE FOR A TOM-TIT'S NEST.

It is only by the most careful observations, continued through successive seasons, that one's eye becomes educated to note every indication of the probable presence of a nest; but in time one learns not only what to look for, but just where it is most likely to be found, what tree, shrub, hedge, bank, or sandpit is most likely to be worth examination. On one occasion, passing a deserted chalk-pit with a friend, I suddenly stopped and pointed to a spot some forty feet from the bottom, saying—"There is a nest." He replied, "O come now, you are not going to tell me that you can see a small nest at that distance?" I answered, "Do you see an evenly rounded little hollow? that regularity represents the cup of a nest, and I am going to prove it to you." I clambered up and brought down a Yellowhammer's nest, to his unbounded surprise; he declared that I must have "the eye of a hawk," but I assured him that it was simply a case of education, acquired by persistent and reasoning method in collecting. One cannot learn these things all at once, they are not instinctive.

These instances will be perhaps sufficient, without adding to them as I might easily do, to prove to the reader that very many nests are comparatively safe from discovery by rusties and untrained sight generally. This fact is far more potent in saving our British songsters from molestation than is the "Wild Birds' Protection Act." As a matter of fact, most of the nests of our more interesting and rarer songsters were as safe before the introduction of the Act as they have been since, excepting when searched for by an experienced collector; it is unusual to meet with rare eggs among those strung and hung up in country cottages, such as there are have been accidentally stumbled upon.

Although it is necessary, when collecting (as I was) with a scientific object, to take entire nests or complete clutches of eggs to represent the different birds in one's cabinet, I by no means recommend the young collector or the general student of bird-life to do anything of the kind. One egg, with a memorandum as to the number found; and a deserted nest, when he is sure of the builders, will answer every purpose for him, and will make things less annoying for the birds; moreover, if a marble, coloured somewhat like the eggs, is substituted for the one abstracted, the owners will be less likely to desert the nest, as some birds will do when one egg is taken away.

When I began to collect I was ignorant of the correct method in which eggs ought to be blown, so that I adopted the old-fashioned plan of making a pinhole at each end and blowing the contents through. This did not satisfy me at all; it not only somewhat injured the appearance of my specimens, but it often burst them. After a little reflection I concluded that, by boring a rather larger hole on one side with a steel drill and inserting a fine blow-pipe I might be able to expel the contents from one opening; and I was quite taken aback when a well-known ornithologist informed me that this was the only scientific way of blowing an egg.

At all naturalists' shops steel drills and blow-pipes are kept in stock; but you will do better by getting a brass blow-pipe from an ironmonger and filing the small end carefully so as to reduce its thickness. A perfectly fresh egg (unless it is that of a game bird or duck) needs a very small hole from which to expel the contents; a series of gentle puffs under the opening will generally clear them out. If the egg is slightly incubated, of course the hole must be drilled larger and the point of the blow-pipe inserted; then a steady current of air, without undue pressure, answers the purpose. Mechanical contrivances have been sold for egg-blowing: I purchased one at a cost of twenty shillings, and broke more eggs than I saved. You cannot mechanically measure the pressure put upon an egg as you can do when you use your lips and lungs. Do not be tempted by any arrangement of bellows, all such things are a snare and a delusion.

Having expelled the contents of an egg, the blow-pipe should be filled with warm water and a jet blown into the orifice until the shell is about one-third filled. The egg should now be gently shaken about to cleanse the interior, and the water forced out with the empty blow-pipe. Lastly, the egg should be placed, hole downwards, on blotting-paper, being kept in position by the use of a little cotton wool. When an egg has been so far prepared for the cabinet, the place where it was found and the date should be written with a fine crowquill pen upon the perforated side; thus on one egg in the Wren's nest previously referred to I wrote above the hole "*Halstow*" and below it "*7/5/84*," and thus I had a record for future reference.

As regards the arrangement of eggs or nests in the cabinet, various methods have been adopted. My own plan for my collection of eggs was chosen with an object. I intended to draw them upon stone for reproduction on my chromo-lithographic plates, therefore I desired to have them so fixed that I could copy the exact markings. In order to do this satisfactorily I chose the unorthodox plan of fixing my eggs with gum-tragacanth upon eardboard and pinning the cards into an entomological cabinet. This plan has the advantage of showing a good series with all variations at a glance, and it has a very neat and pretty effect, but it is considered very bad form for a scientific collection.

Another plan which I adopted for a series of eggs of Indian birds and a few others, is to fill your cabinet drawer with carefully made glass-topped boxes. Inside each of these you fit a narrow wooden frame formed of four thin pieces of lath fastened together with minnikin pins. Above the latter is placed a card perforated with egg-shaped holes and covered by a sheet of rose-coloured wadding. The eggs are then pressed into the holes, the lid shut down, and a label with the name of the bird fixed on the glass outside. A variation on the above is made by cutting a large circle in the card, so that the centre of the sheet of wool forms a shallow nest in which the eggs are placed loosely.

But the most approved plan for arranging eggs in scientific collections is, to use shallow glass-topped boxes of tolerably uniform height, and put layers of cotton wool regulated in numbers by the size of the eggs over the bottom of the interior. The eggs are then carefully arranged in rows upon the wool and the lid shut so that it just touches the eggs and keeps them in their places, the labels are affixed outside the glass as in the other method. When a collector has many varieties of the same kind of egg, this plan is an admirable one, each box doing duty for one species of bird, and being handy for examination when one bird only is being studied.

For arranging nests I have seen no plan so good as my own—deep glass-topped boxes of various sizes, but made in multiples so as to be interchangeable, are arranged in glass-topped cabinet drawers. The bottom of a box, when necessary, is filled with crumpled paper (more or less, according to the depth of the specimen), so that the nest is brought near to the lid. Round the outside of the nest above the paper I place white wadding: among the crumpled paper a piece of stick-naphthaline (albo-carbon); in the centre of the nest below the eggs I drop a little carbolic acid, the lid is shut down, and upon it are fixed two labels bearing the name of the bird and the surroundings in which the nest was found.



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